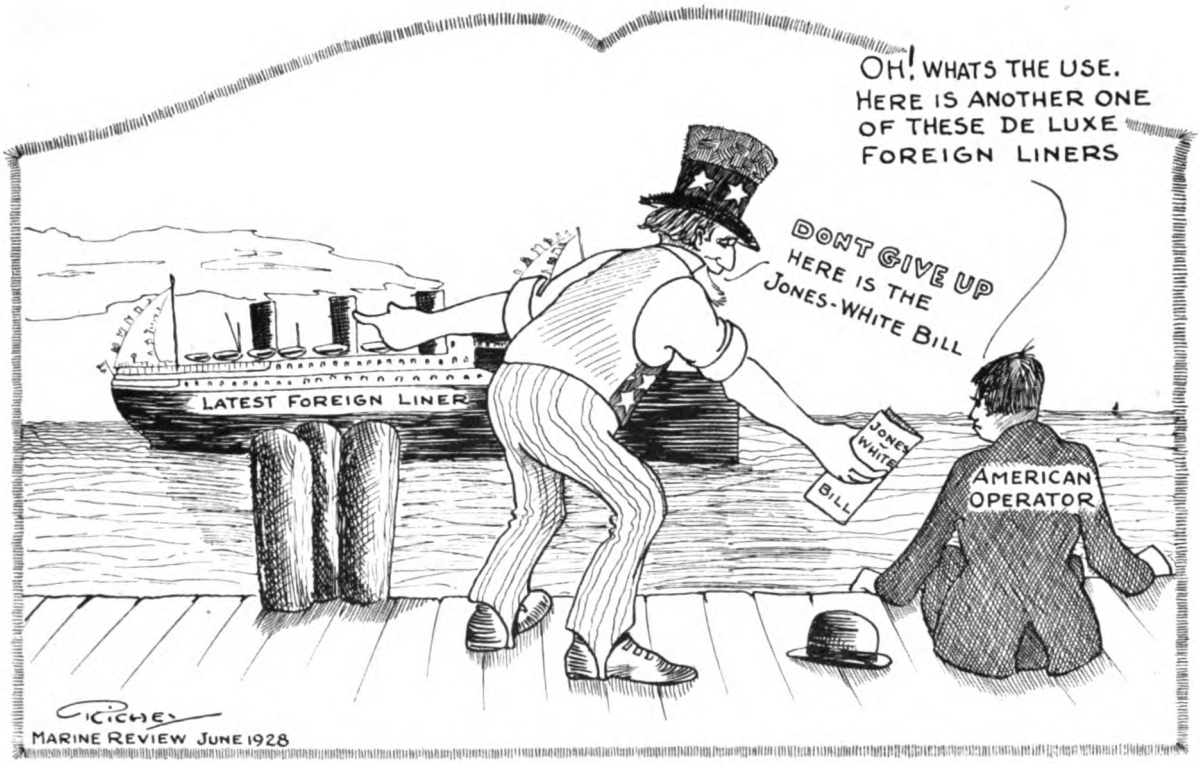
OH! WHATS THE USE. HERE IS ANOTHER ONE OF THESE DE LUXE FOREIGN LINERS
DONT GIVE UP HERE IS THE JONES-WHITE BILL
LATEST FOREIGN LINER
JONES WHITE BILL
AMERICAN OPERATOR
MARINE REVIEW JUNE 1928

# Constructive Shipping Legislation Will Build Up Merchant Marine

By Lynne M. Lamm

THE first session of the seventieth congress will have just adjourned when this issue reaches its readers, not, however, without having passed the Jones-White merchant marine bill. Whatever else may be said for the bill, and it is far from ideal from the standpoint of the shipping interests, it is at least a real step in advance.

President Coolidge signed the bill on May 23 and the momentous Merchant Marine Act of 1928, from which so much is expected, is now law.

The passage of this bill was predicted in the May issue of MARINE REVIEW on the basis that Senator Jones would accept the house bill and this was done. The conference report on the bill, however, was not accepted in the senate without a struggle from those who opposed it as a "subsidy" bill.

As the bill came from conference and as it was finally adopted and now becomes law there were few changes from the way in which it originally passed the house. Only three of these changes were of any importance whatever. They included (1) paragraph (c) of section 405 of the house amendment provided that on each departure from the United States of a vessel employed in the ocean mail service under the act, three-fourths of the crew, exclusive of licensed officers required by law and exclusive of the steward's department, should be citizens of the United States. The modification insisted upon by the senate conferees and to which the house conferees agreed provides: (1) That all licensed officers of vessels documented under the laws of the United States as now required by law shall be citizens of the United States; (2) that from and after the enactment of this act and for a period of four years upon each departure of a vessel employed in the ocean mail service under this title, one-half of the crew shall be citizens of the United States; and (3) that thereafter two-thirds of the crew shall be such citizens.

Little trouble was experienced in the house when the conference report was adopted but in the senate the report was adopted only after some five hours' debate and by a vote of 51 for and 21 against. Just prior to the adoption of the conference report the senate rejected a motion of Senator Blaine, of Wisconsin by 54 to 24 to recommit the bill to conference with instructions to strike out sections of the bill which he opposed. A complete text of the bill follows.



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*Complete Text of*

# Jones-White Merchant Marine Bill—Passed by Congress May 15 Approved by President Coolidge May 23 and Now Law

## TITLE I

## Declaration of Policy

Sec. 1. The policy and the primary purpose declared in section 1 of the merchant marine act, 1920 [U. S. C., title 46, §861], are hereby confirmed.

## TITLE II

## Shipping Board Vessels

### Sales By Board

Sec. 201. The United States shipping board shall not sell any vessel or any line of vessels except when in its judgment the building up and maintenance of an adequate merchant marine can be best served thereby, and then only upon the affirmative vote of five members of the board duly recorded.

### Remodeling and Improving

Sec. 202. In addition to its power to recondition and repair vessels under section 12 of the merchant marine act, 1920, as amended [U. S. C., title 46, §871], the board may remodel and improve vessels owned by the United States and in its possession or under its control, so as to equip them adequately for competition in the foreign trade of the United States. Any vessel so remodeled or improved shall be documented under the laws of the United States and shall remain documented under such laws for not less than five years from the date of the completion of the remodeling or improving and so long as there remains due the United States any money or interest on account of such vessel, and during such period it shall be operated only on voyages which are not exclusively coastwise.

### Replacements

Sec. 203. The necessity for the replacement of vessels owned by the United States and in the possession or under the control of the board and the construction for the board of additional up-to-date cargo, combination cargo and passenger, and passenger ships, to give the United States an adequate merchant marine, is hereby recognized, and the board is authorized and directed to present to congress from time to time, recommendations setting forth what new vessels are required for permanent operation under the United States flag in foreign trade, and the estimated cost thereof, to the end that congress may, from time to time, make provision for replacements and additions. All vessels built for the board shall be built in the United States, and they shall be planned with reference to their possible usefulness as auxiliaries to the naval and military services of the United States.

## TITLE III

## Construction Loan Fund

### Terms and Conditions of Loans

Sec. 301. (a) Section 11 of the merchant marine act, 1920, as amended [U. S. C., title 46, §870; 44 statutes at large, pt. 2, 1451], is amended to read as follows:

"Sec. 11. (a) That the board may set aside, out of the revenues from sales, including proceeds of securities consisting of notes, letters of credit, or other evidences of debt, taken by it for deferred payments on purchase money from sales by the board, whether such securities are to the order of the United States, the United States shipping board, the United States Shipping Board Emergency Fleet Corp., or the United States Shipping Board Merchant Fleet Corp., either directly or by indorsement, until the amounts thus set aside from time to time aggregate $125,000,000. The amount thus set aside shall be known as the construction loan fund. The board may use such fund to the extent it thinks proper, upon such terms as the board may prescribe, in making loans to aid persons citizens of the United States in the construction by them in private shipyards or navy yards in the United States of vessels of the best and most efficient type for the establishment or maintenance of service on lines deemed desirable or necessary by the board, provided such vessels shall be fitted and equipped with the most modern, the most efficient, and the most economical engines, machinery, and commercial appliances of the type and kind mentioned; or in the reconditioning, remodeling, or improvement by them in private shipyards or navy yards in the United States of vessels already built.

"(b) The term 'vessel' or 'vessels', where used in this section, shall be construed to mean a vessel or vessels to aid in whose construction, equipment, reconditioning, remodeling, or improvement, a loan is made from the construction loan fund of the board. All such vessels shall be documented under the laws of the United States and shall remain documented under such laws for not less than twenty years from the date the loan is made, and so long as there remains due the United States any principal or interest on account of such loan.

"(c) No loan shall be made for a longer time than twenty years. If it is not to be repaid within two years from the date when the first advance on the loan is made by the board, the principal shall be payable in equal annual installments to be definitely prescribed in the instruments. The loan may be paid at any time, on thirty days' written notice to the board, with interest computed to date of payment.

"(d) All such loans shall bear interest at rates as follows, payable not less frequently than annually: During any period in which the vessel is operated exclusively in coastwise trade, or is inactive, the rate of interest shall be fixed by the board, but not less than 5¼ per centum per annum. During any period in which the vessel is operated in foreign trade the rate shall be the lowest rate of yield (to the nearest one-eighth of 1 per centum) of any Government obligation bearing a date of issue subsequent to April 6, 1917 (except postal-savings bonds), and outstanding at the time the loan is made by the board, as certified by the secretary of the treasury to the board upon its request. The board may prescribe rules for determining the amount of interest payable under the provisions of this paragraph.

"(e) No loan shall be for a greater sum than three-fourths the cost of the vessel or vessels to be constructed or than three-fourths the cost of the reconditioning, remodeling, improving, or equipping hereinbefore authorized for a vessel already built.

"(f) The board shall require such security as it shall deem necessary to insure the completion of the construction, reconditioning, remodeling, improving, or equipping of the vessel within a reasonable time and the repayment of the loan with interest; when the construction, reconditioning, remodeling, improving, or equipping of the vessel is completed the security shall include a preferred mortgage on the vessel, complying with the provisions of the ship mortgage act, 1920 [U. S. C., title 46, chap. 25], which mortgage shall contain appropriate convenants and provisions to insure the proper physical maintenance of the vessel, and its protection against liens for taxes, penalties, claims, or liabilities of any kind whatever, which might impair the security for the debt. It shall also contain any other covenants and provisions the board may prescribe, including a provision for the summary maturing of the entire debt, for causes to be enumerated in the mortgage.

"(g) The board shall also require and the security furnished shall provide that the owner of the vessel shall keep the same insured against loss or damage by fire, and against marine risks and disasters, and against any and all other insurable risks the board specifies, with such insurance companies, associations, or underwriters, and under such forms of policies, and to such an amount, as the board may prescribe or approve; such insurance companies, associations, or underwriters, and under such forms of policies and to such an amount, as the board may prescribe or approve; such insurance shall be made payable to the board and/or to the parties, as interest may appear. The board is authorized to enter into any agreement that it deems wise in respect to the payment and for the guaranty of premiums of insurance."

(b) Section 11 of the merchant marine act, 1920, as in force immediately prior to the enactment of this act, shall remain in force in respect of all loans made before the enactment of this act.

### Increase of Construction Loan Fund

Sec. 302. (a) There is authorized to be appropriated, to be credited to and for the purposes of the construction loan fund created by section 11 of the merchant marine act, 1920, as amended, such amounts as will, when added to the amounts credited to such fund by the United States shipping board under authority of law (exclusive of repayments on loans from the fund), make the aggregate of the amounts credited to such fund (exclusive of such repayments) equal to $250,000,000.

(b) When $250,000,000 has been credited to such fund (whether by the board under authority of law or from appropriations authorized by this section, but exclusive of repayments on loans from the fund) then no further sums (except such repayments)

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## *Text (Continued) of*

# Jones-White Merchant Marine Bill

(*Continued from Preceding Page*)

shall be credited by the board to such fund.

(c) The construction loan fund shall continue to be a revolving fund. Repayments on loans from the fund shall be credited to the fund, but interest on such loans shall be covered into the treasury as miscellaneous receipts.

### TITLE IV

### Ocean Mail Service

#### Scope of Title

Sec. 401. All mails of the United States carried on vessels between ports (exclusive of ports in the Dominion of Canada other than ports in Nova Scotia) between which it is lawful under the navigation laws for a vessel not documented under the laws of the United States to carry merchandise shall, if practicable, be carried on vessels in respect of which a contract is made under this title.

#### Requirements of Postal Service

Sec. 402. As soon as practicable after the enactment of this act, and from time to time thereafter, it shall be the duty of the postmaster general to certify to the United States shipping board what ocean mail routes, in his opinion, should be established and/or operated for the carrying of mails of the United States between ports (exclusive of ports in the Dominion of Canada other than ports in Nova Scotia) between which it is lawful under the navigation laws for a vessel not documented under the laws of the United States to carry merchandise, distributed so as equitably to serve the Atlantic, Mexican Gulf, and Pacific coast ports, the volume of mail then moving over such routes and the estimated volume thereof during the next five years, the times deemed by him advisable for the departure of the vessels carrying such mails, and other requirements necessary to provide an adequate postal service between such ports.

#### Recommendations by Shipping Board

Sec. 403. The board shall, as soon as practicable after receipt of such certification from the postmaster general, determine and certify to him the type, size, speed, and other characteristics of the vessels which should be employed on each such route, the frequency and regularity of their sailings, and all other facts which bear upon the capacity of the vessels to meet the requirements of the service stated by the postmaster general. The board in making its determination shall take into consideration the desirability of having the mail service performed by vessels constructed in accordance with the latest and most approved types, with modern improvements and appliances.

#### Authority to Make Contracts

Sec. 404. The postmaster general is authorized to enter into contracts with citizens of the United States whose bids are accepted, for the carrying of mails between ports (exclusive of ports in the Dominion of Canada other than ports in Nova Scotia) between which it is lawful under the navigation laws for a vessel not documented under the laws of the United States to carry merchandise. He shall include in such contracts such requirements and conditions as in his best judgment will insure the full and efficient performance thereof and the protection of the interests of the government. Performance under any such contract shall begin not more than three years after the contract is let, and the term of the contract shall not exceed ten years.

#### Vessels

Sec. 405. (a) The vessels employed in ocean mail service under a contract made under this title shall be steel vessels, shall be steam or motor vessels, and shall be either (1) American-built and registered under the laws of the United States during the entire time of such employment, or (2) registered under the laws of the United States not later than February 1, 1928, and so registered during the entire time of such employment, or (3) actually ordered and under construction for the account of citizens of the United States prior to February 1, 1928, and registered under the laws of the United States during the entire time of such employment.

(b) A vessel for the service of which a contract is entered into under authority of this title, and the construction of which is hereafter begun, shall be either (1) a vessel constructed, according to plans and specifications approved by the secretary of the navy, with particular reference to economical conversion into an auxiliary naval vessel, or (2) a vessel which will be otherwise useful to the United States in time of national emergency.

(c) From and after the enactment of this act, all licensed officers of vessels documented under the laws of the United States, as now required by law, shall be citizens of the United States; from and after the enactment of this act and for a period of four years, upon each departure from the United States of a vessel employed in ocean mail service under this title, one-half of the crew (crew including all employees of the ship other than officers) shall be citizens of the United States and, thereafter, two-thirds of the crew as above defined shall be citizens of the United States.

#### Advertising for Bids

Sec. 406. Before making any contract for carrying ocean mails under this title the postmaster general shall give public notice by advertisement once a week for three weeks in such daily newspapers as he shall select in each of the cities of Boston, New York, Philadelphia, Baltimore, New Orleans, Charleston, Norfolk, Savannah, Jacksonville, Galveston, Houston, and Mobile, calling for bids for carrying of such ocean mails; or when the proposed service is to be on the Pacific ocean then in Los Angeles, San Francisco, Portland, Tacoma, and Seattle. Such notice shall describe the proposed route, the time when such contract will be made, the number of trips a year, the schedule required, the time when the service shall commence, the character of the vessels required, and all other information deemed by the postmaster general to be necessary to inform prospective bidders as to the character of the service to be required.

#### Awarding Contracts

Sec. 407. Each contract for the carrying of ocean mails under this title shall be awarded to the lowest bidder who, in the judgment of the postmaster general, possesses such qualifications as to insure proper performance of the mail service under the contract.

#### Classification of Vessels

Sec. 408. (a) The vessels employed in ocean mail service under this title shall be divided into classes as follows:

Class 7. Vessels capable of maintaining a speed of 10 knots at sea in ordinary weather, and of a gross registered tonnage of not less than 2500 tons.

Class 6. Vessels capable of maintaining a speed of 10 knots at sea in ordinary weather, and of a gross registered tonnage of not less than 4000 tons.

Class 5. Vessels capable of maintaining a speed of 13 knots at sea in ordinary weather, and of a gross registered tonnage of not less than 8000 tons.

Class 4. Vessels capable of maintaining a speed of 16 knots at sea in ordinary weather, and of a gross registered tonnage of not less than 10,000 tons.

Class 3. Vessels capable of maintaining a speed of 18 knots at sea in ordinary weather, and of a gross registered tonnage of not less than 12,000 tons.

Class 2. Vessels capable of maintaining a speed of 20 knots at sea in ordinary weather, and of a gross registered tonnage of not less than 16,000 tons.

Class 1. Vessels capable of maintaining a speed of 24 knots at sea in ordinary weather, and of a gross registered tonnage of not less than 20,000 tons.

(b) The classification of a vessel may be based upon its speed without regard to its tonnage if the postmaster general is of opinion that speed is especially important on the particular route on which the vessel is to be employed, and that a suitable vessel documented under the laws of the United States of a higher classification is not available on reasonable terms and conditions, or, on account of the character of the ports served or for other reasons, can not be safely or economically employed on such route.

#### Compensation Under Contracts

Sec. 409. (a) The rate of compensation to be paid under this title for ocean-mail service shall be fixed in the contract. Such rate shall not exceed: For vessels of class 7, $1.50 per nautical mile; for vessels of class 6, $2.50 per nautical mile; for vessels of class 5, $4 per nautical mile; for vessels of class 4, $6 per nautical mile; for vessels of class 3, $8 per nautical mile; for vessels of class 2, $10 per nautical mile; and for vessels of class 1, $12 per nautical mile. As used in this section the term "nautical mile" means 6,080 feet.

(b) When the postmaster general is of opinion that the interests of the postal service will be served thereby, he may, in the case of a vessel of class 1 capable of maintaining a speed in excess of 24 knots at sea in ordinary weather, contract for the payment of compensation in excess

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# Transatlantic Trade Increases

## White Star Line Condition Improved—Declares Six Per Cent Dividend—Building Large Motor Passenger Vessel—Considering a New Express Mail Liner

THE first annual meeting of the White Star line after its purchase by British shipping interests and after a complete year's operation under the new control, was held in London on May 16. On this occasion Lord Kylsant, chairman of the board of directors and an outstanding figure in world shipping, presided. His speech at this meeting is quoted in full as follows:

"I have much pleasure in presiding at the annual meeting of the White Star line. Although the present company was registered only in January, 1927, the famous White Star line dates back to the days of the clipper sailing ships, having been founded in 1854 when the discovery of gold in Australia attracted a rush of immigrants to that country.

"The vessels and flag were taken over by the late Thomas Ismay in 1867 and the business was incorporated as a limited company in 1869 under the name of the Oceanic Steam Navigation Co. Ltd. Mr. Ismay substituted iron sailing ships for wooden vessels employed at that time and in conjunction with the late William Imrie, he ordered the company's first transatlantic steamer. The vessel, the OCEANIC, built by Harland and Wolff, inaugurated the White Star line steamship service across the North Atlantic in 1871.

"To Thomas Ismay in particular, belongs the distinction of having, from small beginnings, built up the business of the White Star line in the face of keen competition and of having been the pioneer not only in the development of high class transatlantic passenger service, but also as regards the size, type, speed and comfort of steamers, having again and again placed in commission the largest and finest vessel in the world.

### Founded by Thomas Ismay

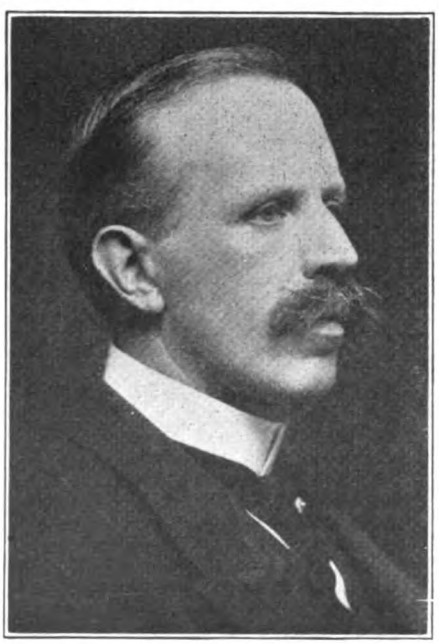
"Mr. Ismay, by his bold and progressive policy laid the foundations of the great organization whose vessels are a household word today on both sides of the Atlantic and which has been carried on and extended while under control of my friend P. A. S. Franklin and my colleague, Harold Sanderson.

"Our accounts set out our position so clearly that comment is unnecessary on special individual items. The present company is the holding company, having acquired the whole of the share capital of the Oceanic Steam Navigation Co. Ltd., owners of the White Star line.

"In order to make our position quite clear to all shareholders, we have had audited accounts of both companies printed in the statement before you. In a letter published in the prospectus of preference share issues made January and July 1927, I departed from my usual practice and made forecast of the results for the year 1927. Shareholders of the White Star Line Ltd., who now number 15,000, will have observed with interest and satisfaction that the results for the past year not only confirmed my forecast but showed it was more than justified.

"After providing for the depreciation of the fleet and paying the dividend on the preference shares, we recommend a dividend of six per cent on ordinary shares and balance carried forward.

"Throughout the year we maintained a regular express mail service between Southampton and New York. There was a slight increase in the number of passengers traveling to and from the United States, of which we secured a fair share. The North Atlantic mail service is the finest and most important passenger service in the world and the White Star line has done much to make it renowned for comfort, speed and regularity. Our magnificent vessels at present engaged in this service, the MAJESTIC, the OLYMPIC and the HOMERIC, continue very popular with the traveling public.



LORD KYLSANT
*Chairman of the White Star Line*

### Alterations and Improvements

"We have, during the last off season, taken the opportunity to carry out numerous alterations and improvements which I am confident will be appreciated by our passengers. We have for some time past been giving our most serious consideration to the important question of the construction of a new express mail vessel so that we may continue to maintain the position and traditions of the White Star line in the north Atlantic trade.

"The Liverpool-New York service has been carried on without interruption throughout 1927 and our vessels have secured a satisfactory complement of passengers by this route. For this service we have under construction at Belfast a passenger motor vessel of over 26,000 tons, which we expect to put into commission in the autumn of next year. She will be not only the largest passenger ship engaged in the New York-Liverpool trade but also the first motor passenger vessel to be placed in that service.

"We have given particular attention to requirements of the Canadian traffic. In addition to our regular service from Liverpool to Quebec and Montreal, in which we have placed the new LAURENTIC, we have established a service from London, Havre and Southampton to Quebec and Montreal, so as to cater more especially to south of England and Continental passengers traveling to and from Canadian ports on this service.

"From channel ports we have placed the ALBERTIC and MEGANTIC, the former vessel being the largest ship to Montreal.

"Since the war there has been a growing demand for accommodation by vessels known as cabin class ships. This appeals especially to a large number of people who do not wish

(*Continued on Page* 62)

Complete transcript of speech made by Lord Kylsant, chairman of the board of directors of the White Star line at the annual meeting in London, May 16.



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## Enters Surveying and Consulting Field

J. O. Arkebauer, during the past eight and one-half years superintendent engineer for Phelps Bros. & Co., United States and Canadian agents for the Cosulich Steamship Line of Trieste, has resigned. On May 1, Mr. Arkebaur opened an office on his own account as marine surveyor and consulting engineer at 11 Moore street, New York City.

Although born in the middle west, Mr. Arkebauer has, through his entire business career, been directly connected with the shipping industry. In his earlier years he served as an engineer on American ships and now

J. O. ARKEBAUER

holds an unlimited license as chief engineer on ocean steamers.

From July 1907 to April 1917, he was an assistant inspector of boilers attached to the New York office of the United States steamboat inspection service. Through his association with the second battalion, New York naval militia, in April 1917 he entered the United States navy where he served throughout the war as machinery inspector. In November 1919 after being released from the service he entered the employ of Phelps Bros. & Co. as superintendent engineer in which position he continued until his recent resignation to go into business for himself.

As a result of his long and varied career, he has acquired valuable knowledge of the shipping industry, of hull and machinery surveying together with ship and machinery appraising. While in the employ of Phelps Bros. & Co., his experience also covered cargo surveying. His connection, for approximately ten years with the steamboat inspection service greatly enhanced the value of his service where surveys involve the interpretation of the laws and supervisors' rulings relating to requirements for vessels of the merchant marine.

He is extensively known in merchant marine circles and the United States navy, where his friends together with those in other fields join in wishing him success in his new undertaking.

## Huge Sum To Be Spent on Dock Improvements

The New York Dock Co., owner and operator of the largest warehouse and pier system in the western hemisphere, will add $10,000,000 in improvements extending over the entire 2½ miles of waterfront in the port of New York owned by the company and in the construction of additional manufacturing and storage buildings. Plans call for the installation of extensive facilities for speeding cargo discharging, docking and loading accommodations and movement of products into warehouses or direct to cars for transportation to rail terminals.

The company owns and controls the largest important water frontage on the New York harbor, extending practically the entire length of the Brooklyn waterfront, from Brooklyn bridge to the Erie basin, directly opposite lower Manhattan. Physical properties of the company, which have been assessed for tax purposes at $27,500,000, include facilities for storage in more than 100 buildings containing 116 acres of floor space; 60 factory buildings with over 27,500,000 square feet of floor space; over 10 miles of wharves; 34 piers, and 3 railroad terminals. Twenty different steamship lines utilize these piers regularly and the ports of 40 different countries send their ships to the company's docks.

## Naval Engineers' Medal Awarded to H. F. Schmidt

The medal of the American Society of Naval Engineers was recently awarded to Henry F. Schmidt, consulting engineer of the Westinghouse Electric & Mfg. Co., South Philadelphia works, for the best article submitted during the year 1927. Mr. Schmidt, besides being awarded a gold medal, was given an honorary life membership in the society and a cash prize for his excellent and well-illustrated paper, entitled "Some Screw Propeller Experiments With Particular Reference to Pumps and Blowers."

## Appointed West Coast Passenger Agent

William G. Fitch, recently appointed Pacific coast general passenger agent for the United States lines with offices in San Francisco, succeeds the late Moses H. Hunt whose vacancy had been temporarily filled by H. E. Perkins.

Born in East Oakland, Calif., in 1889, he is the son of the late Col. Henry S. Fitch, a veteran of the Mexican war. The family moved to San Francisco in 1895, where Colonel Fitch at that time was a large property owner. After attending grammar school for some time Mr. Fitch came east to New York, and from

WILLIAM G. FITCH

there entered Greer college in Hoopeston, Ill. In 1909 he became assistant passenger agent under T. H. Rossbottom of the Panama Railroad Steamship Co., with offices in New York City. He remained with this government transportation line until 1921 when the United States Mail line, composed mainly of seized German transatlantic liners, was repossessed by the government because of alleged failure to pay the charter hire.

With the organization of the United States lines which came as a consequence of this, and the appointment of T. H. Rossbottom as manager, Mr. Fitch became district passenger solicitor for the company at the New York office in March, 1922. In June of the same year he was appointed traveling agent and in December was tranferred to San Francisco as general agent in charge of California and Nevada.

In 1925, having met with unusual



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success in securing passenger business for the United States lines, he was transferred to Cleveland, where he was again successful in very materially increasing the revenues from passenger trade.

In his present position as general passenger agent for the Pacific coast, Mr. Fitch has a large and important territory to carry on his work of popularizing patronage by Americans of American flagships. The fact that 80 per cent of ocean voyagers are Americans, and the added fact that only 15 per cent of this number travel in American ships indicates the condition which Mr. Fitch is determined to improve by appealing not only to the patriotism and loyalty of American citizens but to their discrimination as travelers.

## Order Equipment

The Pennsylvania Railroad Co. in the latter part of April placed an order for seven carfloats and one steam lighter with the American Brown Boveri Electric Corp. Two tugboat hulls were ordered at the same time from Pusey & Jones, Wilmington, Del. This floating equipment which is required for the marine service of the company in New York harbor will cost about $1,000,000.

# Obituaries

## Albert H. Lambrix

Albert H. Lambrix, 60 years of age and for over 25 years commissioner for the Lake Carriers' association at the port of Buffalo, died in that city. He was the son of Martin Lambrix who was born at Lancaster, N. Y. The son, however, was born in Canada and removed to Buffalo as a boy. He first worked as a stevedore in W. J. Conner's company. Mr. Lambrix was known to the officers of practically all the freight vessels on the great Lakes. It was his job serving as commissioner to supply the vessels of the Lake Carriers' association with crews.

Joseph Ehnes was appointed to fill the position of commissioner to succeed the late Mr. Lambrix. Commissioner Ehnes is a native of Buffalo and entered the service of the Lake Carriers' in 1915 under commissioner Lambrix and received his training from the latter.

On April 14, Joseph C. Gabriel formerly superintendent of the Atlantic Refining Co. died at Atlantic City, N. J.

## C. Lee Cook, Inventor, Dies at Louisville

With the passing of C. Lee Cook on April 25, a life of unflinching devotion to the ideal of service was brought to a close. Born in 1871, his life was one of untiring effort in behalf of progress, an instance of man's humanity to man, carried on by an indomitable will, an invincible soul, a great heart which would not yield to one of the greatest handicaps—a crippled body whose strength was that of a child. Such an obstacle in the pathway of achievement would have broken the spirit of a weaker character but served only to spur him on to greater effort and accomplishment.

C. LEE COOK

Even though never able to walk a step nor hold a weight of more than a few ounces in his hands, C. Lee Cook achieved eminence as an inventor and as an engineer, became an authority on law, languages, architecture and history. Progress in many fields of mechanical development has been due to the inventive genius of Mr. Cook, this Louisville invalid, who was wheeled around from place to place in a "buggy" of his own design. Undoubtedly, the marine field has been much benefited by his inventions and developments.

Inventive genius was manifested early in his life when, at the age of eight he built a steam engine which worked. It was constructed of necessity from crudest materials, consisting of a cylinder composed of a cartridge shell, a boiler made from a can and a flue fashioned from a kerosene lamp burner. This faculty was further emphasized at the age of eight years by the production of a working model of the famous Mississippi towboat AJAX, powered by steam and towing miniature barges made from cigar boxes. Outstanding among his earliest productions was a steam fire engine eight inches high and weighing only seven pounds which threw a stream of water 50 feet. The materials used in this case consisted of steel hairpins, brass gas-jet tubing, pieces of a French harp, lamp burners and knitting needles. By noted inventors, mechanics and watchsmiths this fire engine was said to be comparable in workmanship to the finest watches. Explosion hazards in boilers were practically eliminated by an invention which prevented the passage of oil through the steam condensers and permitted automatic lubrication.

His greatest invention, known throughout the world, is a form of metallic packing, produced under most unusual circumstances. It was secretly fitted by Mr. Cook to the rod of a locomotive's steam chest and tested without the engineer's knowledge. The locomotive to which this was fitted covered nearly 200,000 miles without repair. Through the revenue from early sales he was enabled to purchase a lathe. He then built a steam engine for operating it and with his father's stable as factory, perfected the packing into what is now known as the "Lee Cook ring." Many ships of the Emergency Fleet Corp. were fitted during the war with this metallic ring, which developed from such crude beginnings. By degrees and hard work the C. Lee Cook Mfg. Co. has expanded until today it is a concern of international importance.

Being called into consultation with authorities regulating traffic facilities on inland waterways, Mr. Cook produced a working model of an ideal boat for river service requiring the least possible draft. This vessel was designed for 3500 horsepower, 3000 net tonnage capacity with draft of only seven feet fully loaded. Every part of the ship's construction was from his design.

Regarding achievement, Mr. Cook has been compared with Da Vinci whose name stands out in history as representing great intelligence, most adequate expression of his greatness of character is to be found in his own words:

"Success cannot be defined; it can only be described. It is not a brilliant scene; it is power working for good, just doing the right thing strongly and always while doing it, gathering more strength to do it more strongly."



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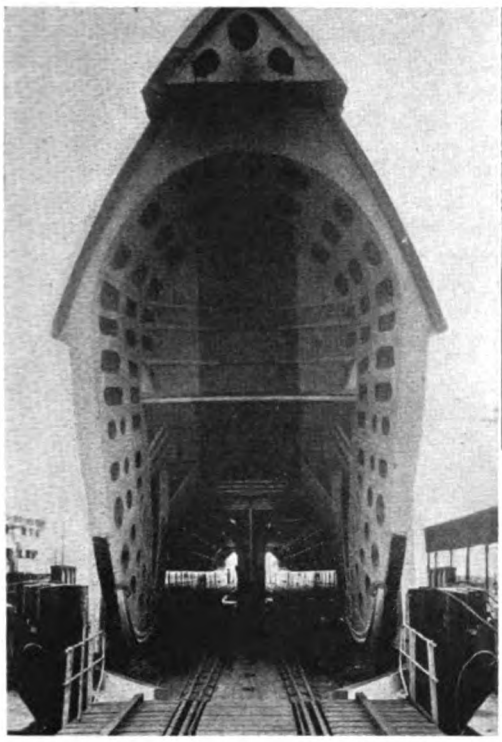
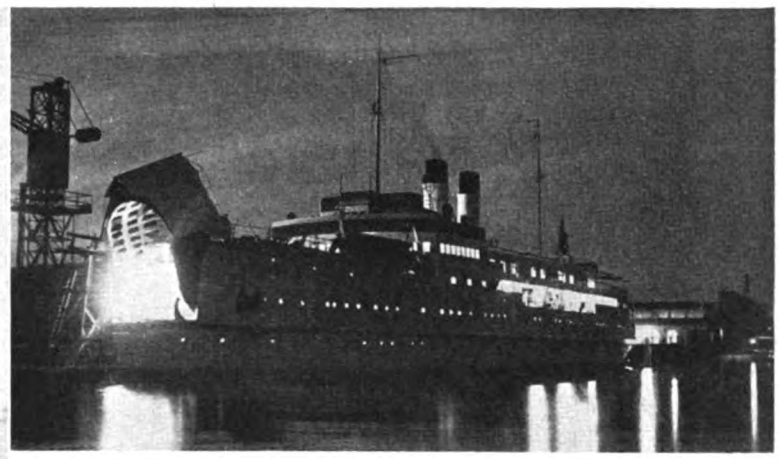
# Novel Gate is Fitted on New German Carferry





*THE S. S. Schwerin, new German railroad ferry for service on the Baltic, is like a fairy tale dragon in appearance. Her bow is like a great jaw that rises to admit an entire train and then closes to hold the cargo safe from the sea. Twenty passenger cars and 40 freight cars are transported each trip between Berlin and Copenhagen, via Warnomuende.*

# Build Passenger Terminal at Buffalo

PLANS for the early erection of the new Cleveland and Buffalo Transit Co.'s Buffalo terminal are being rapidly developed, according to George A. Boom, general manager of the company. W. S. Lougee, well known architect, is following the same general design as the East Ninth street Cleveland terminal of the company, regarded as one of the best and most efficient terminals in the country.

The new Buffalo terminal is to be built on the property of the company at Coit slip at the foot of Erie street, within 2000 feet of Shelton square, in the heart of the city. The company will have 900 feet of dockage on Coit slip and its property is 207 feet wide. It is estimated that more than $1,000,000 will be spent to complete the project.

The new terminal will be 810 feet in length, with 66,000 square feet of warehouse space, and 9000 square feet devoted to waiting rooms and offices. This new terminal is made possible by the improvement of that part of the Buffalo harbor known as the Erie basin, and The Cleveland and Buffalo Transit Co. plans to have the completion of its terminal building accomplished by the time the final harbor improvements are effected.

Adequate bus service will be furnished by the City of Buffalo, direct to the Cleveland and Buffalo terminal, although one can walk to the Statler hotel or the heart of the business section within four minutes.

Opposite the new pier, as part of this new development, the City of Buffalo plans, at the same time, to construct a recreation pier, adding to the desirability of this attractive section of the city. The present terminal of The Cleveland and Buffalo Transit Co., situated at the South Michigan avenue bridge will be disposed of as

DRAWING OF PROJECTED NEW PASSENGER AND FREIGHT TERMINAL FOR CLEVELAND AND BUFFALO TRANSIT CO. AT BUFFALO



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soon as the new terminal buildings are completed.

T. F. Newman, president of the company, states that this will complete a program of twenty-three years in the successful culmination of the plans to secure this most important site, giving the company approximately three times its present dockage space at Buffalo. This splendid new terminal will materially increase the efficiency as well of the passenger and freight facilities of the company.

## E. A. Sperry Nominated

Elmer A. Sperry, chairman of the board of directors of the Sperry Gyroscope Co., Brooklyn N. Y., was nominated for the presidency of the American Society of Mechanical Engineers at a meeting recently of the nominating committee at Pittsburgh.

## Named Commissioner

President Coolidge nominated Samuel S. Sandberg of California to be a member of the United States shipping board succeeding Commissioner Teller. This is the second new member nominated by the President recently, the other being Hutch I. Cone to succeed William S. Benson. The newly nominated commissioner is 60 years old, and he has been manager of Los Angeles harbor for the past six years. For five years he served as marine superintendent of the Luckenbach Steamship Co., New York, and is a practical operator.

# Diesel-Electric in Small Freighter

IT IS difficult to realize completely how varied are the needs of the American domestic merchant marine. In this category naturally come all types of craft for coastwise, lakes, rivers, bays and sounds. For instance the unique and interesting little vessel shown in the accompanying illustration was built by the Bethlehem Shipbuilding Corp. at its Fore river plant from designs prepared by Eads Johnson, New York naval architect, to meet the particular need of the owner, Johnson & Johnson, famous manufacturer of surgical accessories at Brunswick, N. J. The vessel operating company is known as the Middlesex Transportation Co.

This vessel named the EDWARD F. FARRINGTON is said to be unique in that she is the only freight boat of her type built in the United States which is propelled by diesel electric drive. She is built of steel throughout and has a single continuous main deck. Between this deck and the upper deck, which extends from the stern for about three-quarters of the length of the vessel forward, is the cargo space. The pilot house and quarters for officers and crew are located in a wooden house erected on the upper deck. The steel sides of the vessel are continued to the upper deck except in the extreme stern. A mast with a boom and the usual tackle is located just forward of the house. An electric hoist located under the main deck serves this boom. Rolling doors of Kinnear patent are used for access to the deck house cargo space. These doors roll up and are self-stowing.

The FARRINGTON was launched Feb. 11 and was completed Feb. 18, 1928. Her principal characteristics are: Length over all, 132 feet 7 inches; length between perpendiculars, 120 feet; breadth molded, 30 feet; depth molded, 11 feet 3 inches; draft, 7 feet, 1½ inch; displacement loaded, 405 tons; gross tonnage, 492; net tonnage 295; bunker fuel capacity in tons of 2240 pounds each, 13. Normal speed is 12 knots.

A double armature direct current electric motor of 400 horsepower at 250 volts is direct connected to a single propeller. Current for the propelling motor is supplied by two generating sets of 165 kilowatts each at 250 volts. Each generating set has one 15-kilowatt, 125 volts, direct current exciter. Power for driving each generating set is supplied by one model 116, 250 brake horsepower Winton diesel engine. All of the electrical machinery was fur-

*Edward F. Farrington—Diesel Electric Package Freight Boat for Johnson & Johnson, Brunswick, N. J.*



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nished by the General Electric Co. There is also an auxiliary generator driven by an Hill diesel engine. For heating purposes there is one American Radiator Co. watertube boiler burning oil. The auxiliary generator is furnished by the Electro Dynamic Co. There is a freshwater pump of Rumsey make. To handle cargo there is a double friction drum electric hoist made by Lidgerwood Mfg. Co. The steering engine is electric motor driven and was built by the American Engineering Co. The controls were furnished by Cutler-Hammer Co.

The electrically driven hoisting machinery located in the forward hold below the main deck is controlled from the pilot house. The main propelling machinery is also controlled from the pilot house. Layout of machinery is simple and convenient. There is an after peak bulkhead located about 8 feet forward of the stern post. The two generating sets are located port and starboard approximately, amidships. Forward of these generating sets is a screen bulkhead forward of which in turn is the hold. At the forward end of this hold is a fore peak watertight bulkhead. Aft of the two generating sets and located on the center line is the double armature electric motor direct connected to the propeller shaft. The auxiliary generating set is located on the starboard side.

The hull proper is of steel and of scantlings to meet the highest requirements for merchant practice. A feature of the structure is the truss construction designed to suit the shallow draft of the route plied. Although a small ship she is completely equipped with the latest marine installations and equipment in order to comfortably accommodate a crew of 18 men.

Electric drive for a vessel in this particular service operating in restricted waters is of special value due to its flexibility and the fact that direct control of propeller action may be had by the captain in the pilot house. The FARRINGTON is a fine example of a completely modern vessel in all machinery and hull features and should render notable service.

# New Liner Enters Galveston Service

THE new steamship ALGONQUIN, has been transferred from the Clyde line Florida route to the Mallory line New York and Texas service and sailed on her initial voyage for Galveston on May 19.

It will be recalled that the ALGONQUIN made her first appearance on the coast early last year from the yard of the Newport News Shipbuilding and Dry Dock Co., Newport News, Va., where she was built at a cost of somewhat over two million dollars. A description of this vessel appeared in MARINE REVIEW for April 1927.

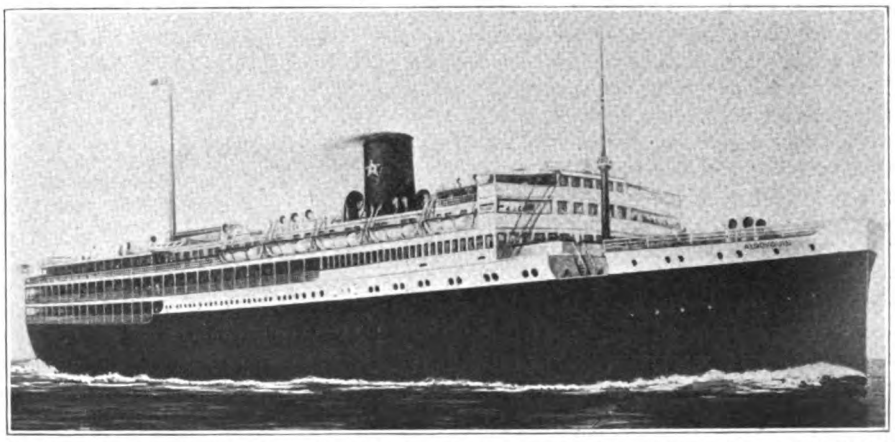
No more ambitious or extensive shipbuilding program has ever been undertaken in this country than that of the Clyde line during the past two and a half years, and which brought forth the ALGONQUIN and her sister ships, CHEROKEE, MOHAWK and SEMINOLE, involving a total expenditure of approximately nine million dollars. The specifications of these ships provided facilities far in advance of the times and it was a big venture, particularly as each vessel was designed to accommodate upwards of four hundred passengers on a single trip in domestic coastwise trade. The program, however, was carried through to completion and the farsightedness of the owners is evidenced by the volume of coastwise passenger traffic that has been developed as these ships have been commissioned one after the other since completion of the first one less than three years ago.

Not content with the completion and operation of these four sister ships, the Clyde line ventured still further and brought forth the new, popular and still larger turbine, twin screw steamships IROQUOIS and SHAWNEE, each accommodating more than six hundred people. When these ships made their initial appearance from the shipyard in July last year, both were used for a series of cruises from New York to Quebec. Throughout the past winter, since the opening of the deep water harbor at Miami, Florida, last December, they have been operated between New York, Miami and Havana. These six big, new Clyde line passenger vessels are generally conceded to be among the finest coastwise steamers in the world.

Having provided adequate facilities for the Atlantic coast traffic with the employment of these six steamers, the Mallory line, associated with the Clyde line, has completed arrangements to increase passenger facilities to and from Texas by the operation of the ALGONQUIN throughout the summer months on fast schedule between New York and Galveston. This will afford travelers to and from Texas a greater capacity and a wider range of accommodations than has ever before been available in that trade.

The ALGONQUIN sailed from Galveston on her initial voyage May 26, and is due to arrive at New York, June 1. She will then sail from each port every other Saturday, and the Mallory liner SAN JACINTO will continue in service from each port on the alternate Saturdays..

The Mallory Steamship Co. is the pioneer freight and passenger line to Texas, having been continuously in operation to and from Galveston during the past sixty-two years. During its more than a half century of operation the Mallory line service has been very favorably received. The line's steamers all have splendid records and some of them have earned special distinction in one way or another. The steamer HENRY R. MALLORY carried the first contingent of American soldiers to French soil. The steamer SAN JACINTO likewise played an important part throughout the World war.



NEW LINER S. S. ALGONQUIN NOW OPERATING BETWEEN TEXAS AND NEW YORK



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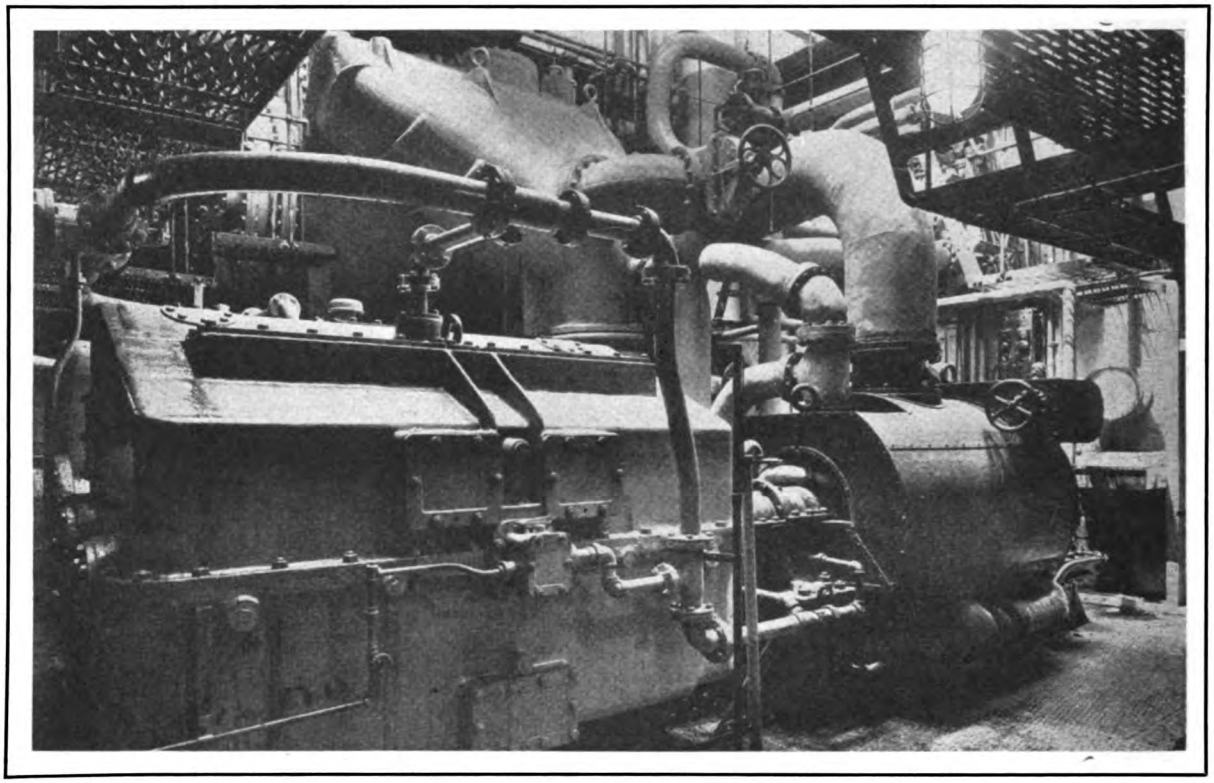

*Steam Turbine Geared Installation of 3000 Shaft Horsepower*

# *Install Modern Machinery on Lake Vessels to Reduce Operating Costs*

By W. E. Thau

GREAT LAKES engineering applied to unloading machinery on docks and on certain types of the self-unloading vessels has attained the most modern state of development in that the systems used are probably the most up-to-date in their design and operation of any similar appliances in the country. In view of these modern developments, it is surprising that the main and auxiliary machinery used to propel vessels has, with few exceptions, seen little change in many years. To date, reciprocating steam engines with fire-tube, hand-fired boilers; jet condensers, air pumps, and steam auxiliaries have been used practically to the total exclusion of modern types of machinery. Surface condensers and water tube boilers have been applied in a few cases and mechanical stokers in two instances, and thus we find that modern machinery has been introduced on Great Lakes vessels to only a very restricted extent.

Keen competition and great pressure for improved operation of ships has forced the introduction of modern machinery in practically all fields of the marine industry except the Great Lakes. It is, therefore, the purpose of this paper to discuss the application of modern propelling and engine room auxiliary machinery to Great Lakes vessels.

To this end, the three principal types of Great Lakes vessels will be considered in particular, namely, the self-unloading bulk freighter such as the limestone carriers, the cargo vessels trading in the lakes, canals and rivers; and the standard bulk freighters, such as the ore carriers. Passenger ships and miscellaneous craft are not considered specifically in this paper.

Those who have followed marine engineering broadly know very well that each of the several types of marine drives has its own particular field of application for which it is best suited. It is true in several instances the fields overlap, and that in those cases selection is governed by local conditions. Also, the fields are defined by bands rather than by lines, and the field of one merges into the field of the other. It is advisable for those advocating a particular type of marine drive to exercise considerable caution for the good reason that one improper application will do more harm to the future of that drive than a dozen perfect applications could counteract. Therefore, we do not want to advocate particular types simply to swell the list. Each application must stand on its own merits and be creditable to itself.

The first type of vessel to be considered is the self-unloading bulk

This article was read as a paper before the Detroit Engineering Societies, Detroit, Mich., April 27, 1928. The author, W. E. Thau, is director of Marine Engineering of the Westinghouse Electric & Mfg. Co.



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freighter. It has been clearly brought to the front during the past few years that the use of electrically driven auxiliaries is a real step toward economy in the operation of ships. In the case of a steamship having independently driven auxiliaries, the electrically driven engine room auxiliaries effect a saving of approximately 10 per cent of the total steam. This is due to the much superior unit economy of the centralized generating plant in conjunction with the high efficiency of electric motors and the most flexible system for proper heat balance, as compared with the separate small engines and turbine driven auxiliaries.

Generally speaking, any vessel having a relatively high port load in comparison with its propelling power requirements, represents a good case for electric propulsion in that the same prime mover serves both sea and port loads. This is true, regardless of whether the ship be driven by internal combustion engines or turbines.

Such is the case of the self-unloading limestone carriers and vessels of similar function. Here, there is upwards of 750 kilowatts load demand practically continuously while at port, which can be served efficiently by the same source that supplies the propeller when underway. This arrangement reduced the investment carrying charges to a minimum and at the same time provides efficient operation.

To further the utilization of the central power plant idea, the auxiliaries while at sea can be supplied by the main prime mover. The most economical and least expensive manner of providing this arrangement is to use alternating current auxiliaries as far as possible, since alternating current power is available direct from the main generator at highest efficiency.

### Auxiliary Power from Main Unit

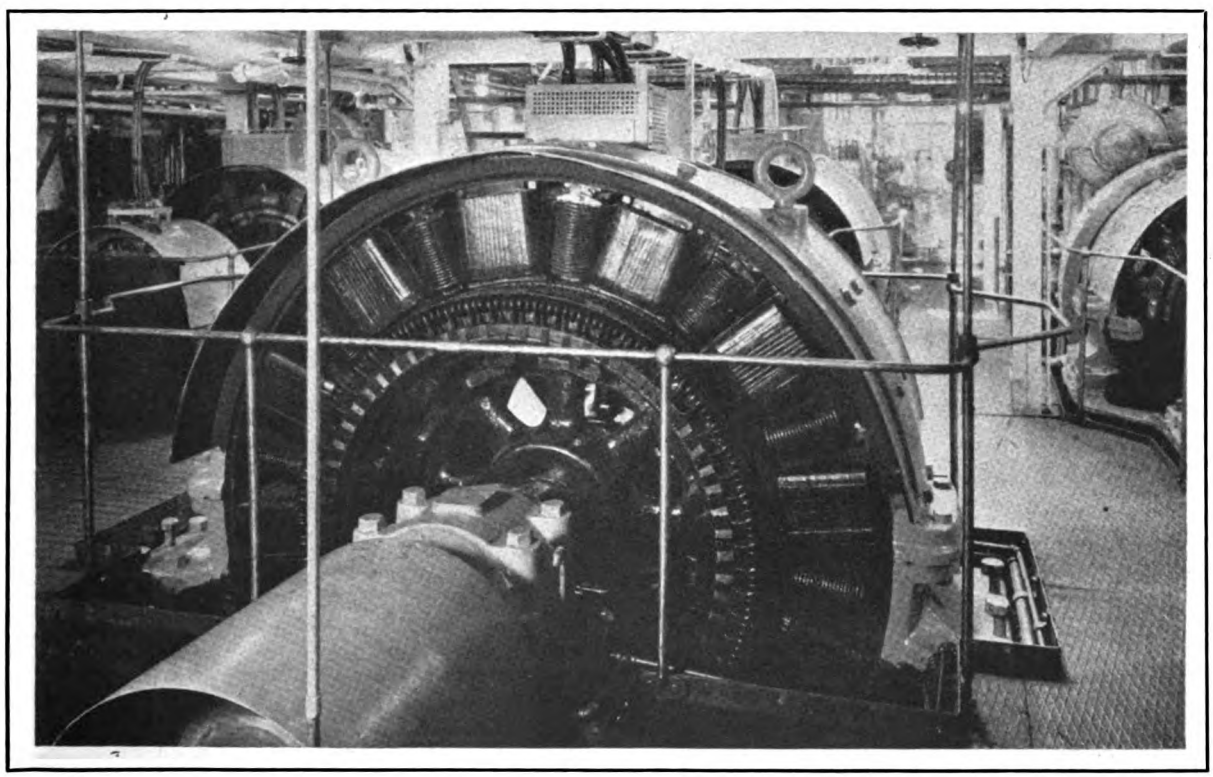
To provide substantially constant frequency with this system necessitates a dual drive set consisting of a direct current generator for supplying the direct current load; a synchronous machine which serves as a motor or a generator, as conditions demand; and an auxiliary turbine. The control is arranged so that the alternating current load is supplied by the main generator when the frequency is above a predetermined value, say ¾. The main generator also supplies power to the synchronous machine which in this case acts as a motor driving the direct current generator. The auxiliary turbine floats idly with its exhaust connected to the condenser. When the frequency falls below the predetermined value, the electrical connection to the synchronous machine is automatically disconnected and steam admitted to the auxiliary turbine which then takes up the auxiliary load, both alternating current and direct current. Certain of the auxiliaries such as the circulating pump, condensate pump and propelling machinery ventilating sets may be connected to the main generator at all times since their speed can vary with that of the prime mover.

Such a system is in operation on the CARL D. BRADLEY, and five installations are being made on turbine electric coast guard cutters now building. It is believed the system has great future possibilities.

The percentage saving resulting from the use of the turbine electric drive as compared with reciprocating engine drive insofar as the main machinery is concerned, is approximately the same for this type of ship as for the ore carriers, for which geared turbine has been analyzed and which will be discussed later.

The economy performance of the turbine-electric drive should be very nearly equal to that of geared-turbine drive using the same type of auxiliaries and machinery.

Owing to the ability to use higher steam pressure and temperature, and greater vacuum, the turbine-electric drive with electric auxiliaries should show 30 per cent less steam consumption than a reciprocating steam engine drive. This reduction in steam



*Engine Room Steel Electrician—Propulsion Motor in Foreground—Three Diesel Generating Sets Furnish Electric Current*



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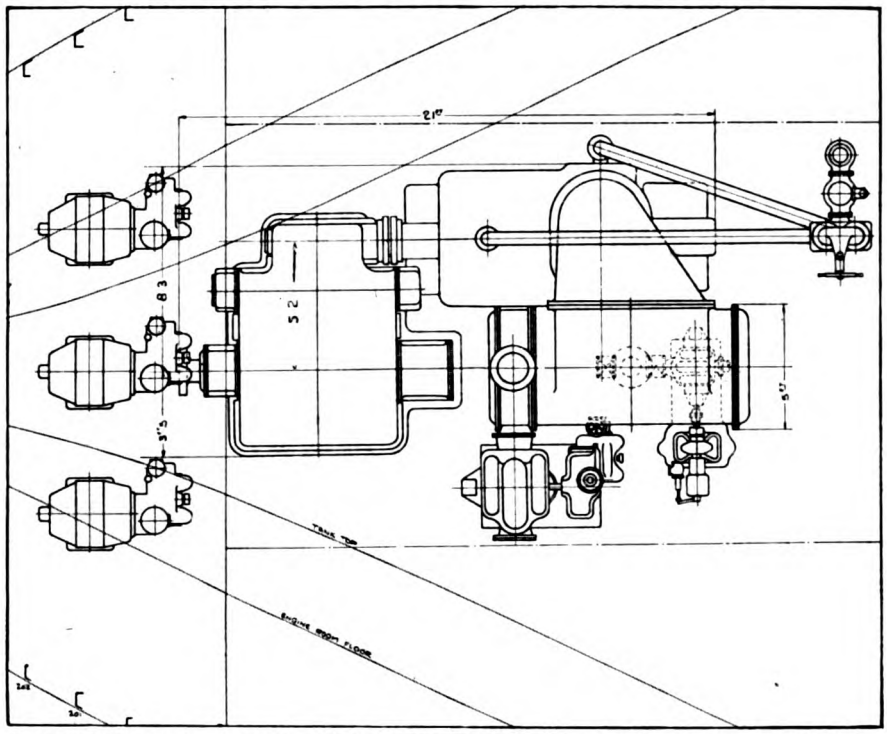


PROPOSED STEAM TURBINE GEARED INSTALLATION OF 2000 SHAFT HORSEPOWER FOR STANDARD GREAT LAKES ORE CARRIER

consumption has a proportionate effect on the fuel burned and on the size and cost of the boiler and condenser plant. The use of mechanical stokers further increases the fuel cost economy by at least 15 per cent, and in many cases considerably more.

On the basis of selecting boilers and auxiliaries of proportionate capacity, a 2000 shaft horsepower turbine-electric drive using watertube boilers, mechanical stokers, surface condensers, air ejectors and electrically driven engine room auxiliaries, would cost approximately $60,000 more than a reciprocating steam engine drive using hand-fired scotch boilers, jet condensers, the conventional air pump and steam engine room auxiliaries.

### Large Saving in Fuel

The difference in the cost per year for coal while under way would be approximately $22,000. On the basis of 15 per cent carrying charge, the additional investment justified would be $145,000; or in other words, the additional investment would pay for itself in about three years. This figure does not take into account the saving in fuel for the port condition, which would amount to approximately one-third of that used by steam-driven engine room auxiliaries and unloading equipment.

The weight saving in the case of turbine-electric drive as compared with reciprocating steam engine drive, on the basis stated, amounts to approximately 110 tons, exclusive of 90 tons additional fuel carried by the engine-driven ship. Therefore, approximately 200 tons additional cargo can be carried.

In the analysis of this type of ship, the reduction in fire room personnel due to the stokers has not been taken into account, nor has the added cargo revenue due to the weight saving been considered. Both of these items would further reduce the operating costs.

Additional advantages of the turbine-electric drive are:

1 Cost of engine room supplies, such as waste, packing and lubricating oil.

2 Maintenance, in that rotating machinery shows inherently less wear than reciprocating machinery.

3 Reduction in piping cost due to electric auxiliaries.

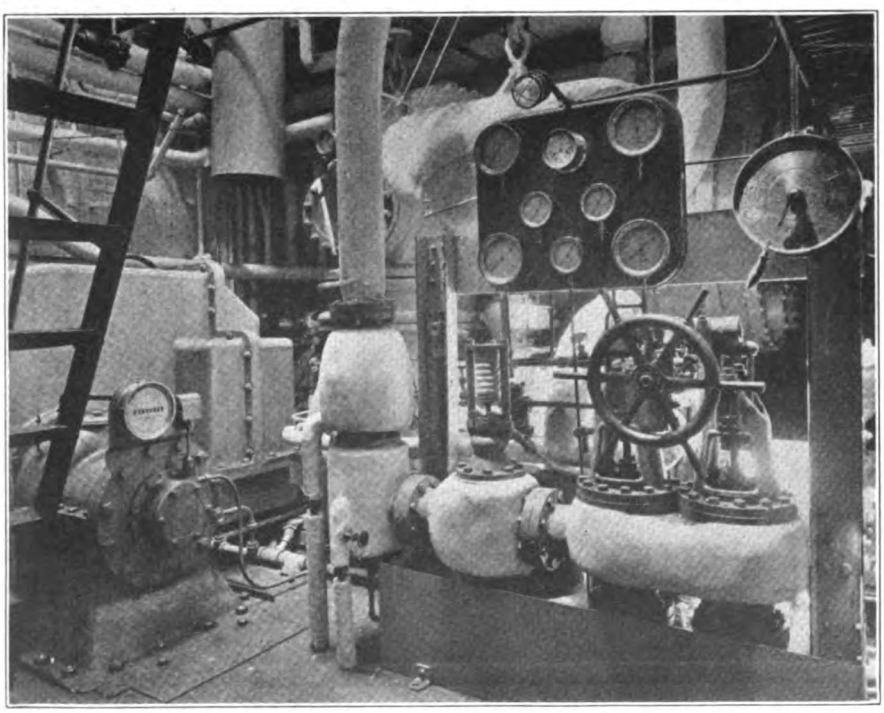
4 The fact that electric equipment furnishes a ready means for studying the actual performance.

### Freighters for Canals and Rivers

The second type of ship to be discussed is that operating through canals and rivers. To date, four of this type are equipped with diesel-electric drive, the latest of which is the M. S. STEEL ELECTRICIAN. A few others have been equipped with direct drive diesel engines.

Because of the limited size and draft of vessels in this trade, it is essential to lay out the design so that the maximum amount of cargo can be carried with a given total displacement of vessel. Weight is of prime importance since any saving in that line can be devoted to revenue earning cargo. Considering all the items of a steam drive, including water in machinery and bunker fuel, the steam plant, particularly the reciprocating engine plant, is at a disadvantage in these small powered ships when compared with diesel or diesel-electric drive.

Furthermore, this service is not well suited to high economy steam plants in that the reciprocating engine is at a disadvantage with high temperature steam and the turbine



STEAM TURBINE GEARED DRIVE SHOWING CONTROL WHEEL FOR AHEAD AND ASTERN OPERATION



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is at a disadvantage in economy on account of the small power, intermittent service, and reduced speed operation. Also these ships operate in a trade where oil is relatively cheaper than at other Great Lakes locations, and where coal is relatively expensive at the terminals.

### Diesel Electric Drive Advantages

Of the two types of diesel drive, the diesel-electric has the following advantages:

1 Reliability resulting from the multiplicity of engines and elimination of reversing gear from the engines.

2 Continuity of service resulting from the multiplicity of engines. Lay-ups in the case of a ship having a restricted season of operation are particularly costly.

3 Ability to provide extremely low speeds continuously, an important feature for this service.

4 Bridge control with its many superior points in comparison with signal control.

5 Lower maintenance resulting from the simplification in construction and operation of the unidirectional engine as compared with the reversible engine.

Owing to the fact that the direct diesel drive requires a separate auxiliary generating plant, whereas, the diesel-electric does not, the total machinery cost is very nearly the same. As a matter of fact, the latter costs only 3 per cent to 5 per cent more for this class of ship than the former (on the same torque basis), depending upon the ratio of port load to propelling load, and the machinery arrangement. In the case of other classes of ships, the cost ratio will be different, however, in certain instances the total operating costs of the diesel-electric drive are less than the direct diesel drive.

In regard to weight, the two types are on approximately even terms, and often the advantage lies with the diesel-electric, depending upon the types of engine used. The space requirements of the two types are about the same. A thorough comparison which has been made recently by a concern operating three direct diesel drives and one diesel-electric drive, shows the preference to lie with the diesel-electric, all items being considered.

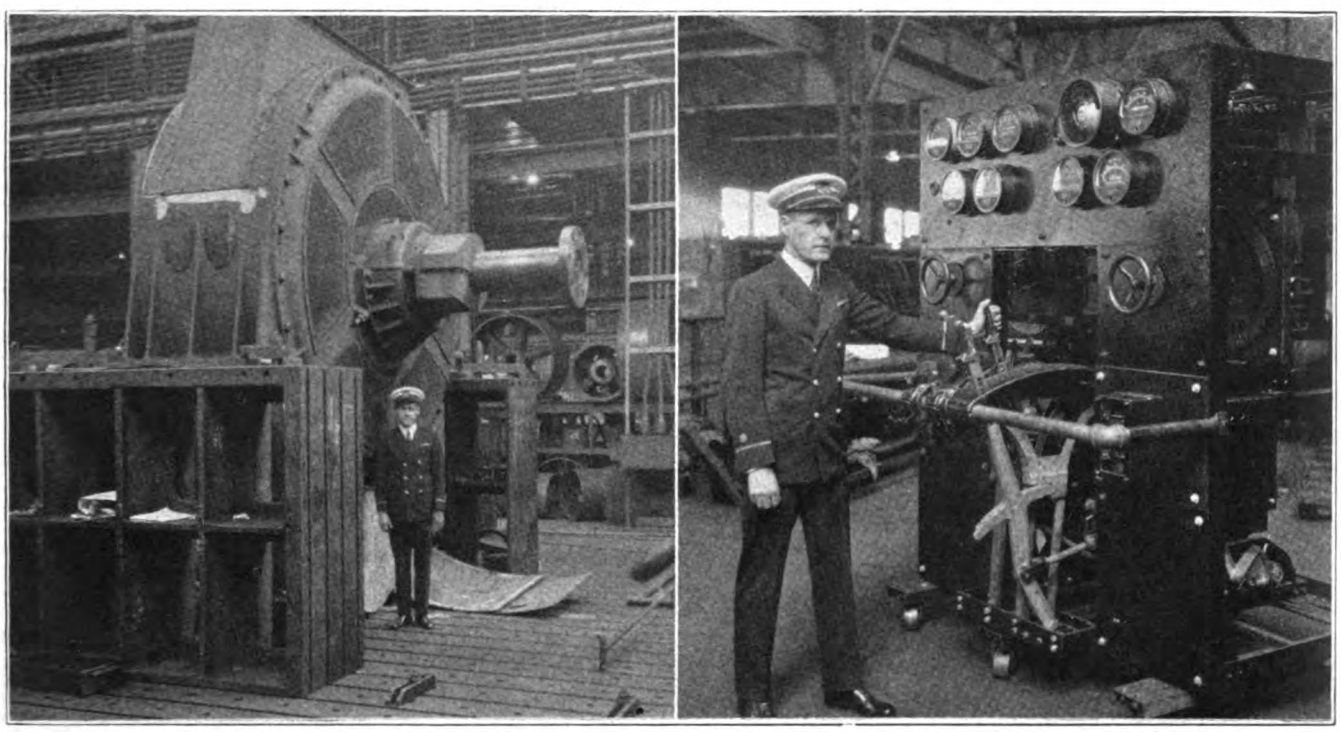
It might be mentioned here that the same electrical system used on the STEEL ELECTRICIAN is economically applicable, with either diesel or turbine prime movers, to lake carferries and passenger ferries where the requirements are exacting as well as severe.

### Standard Lake Ore Carriers

The third type of lake vessel to be considered is the standard ore carrier or bulk freighter of the non-self-unloading type.

In the case of the ore boat, we have just completed a very thorough study of geared turbine drive in comparison with reciprocating steam engine drive. In this study, great care was taken to obtain actual data on cost, weight and performance of the reciprocating engine drive. In cases where the data varies considerably, the average figures were selected and used; and in the case of items concerning which there was any doubt, favor was shown to the reciprocating engine. Engine costs received from Great Lakes shipyard sources were used even though engine prices received from engine builders and other sources were appreciably lower. Advantage is taken, however, of the reduced boiler capacity suited to the lower steam consumption of the geared turbine. On these bases, the analysis justifies the geared turbine.

This analysis is based on a standard reciprocating engine driven ore carrier operating between Conneaut, O., and Duluth, Minn., and having the following characteristics and schedule: 2000 shaft horsepower single screw; 30 round trips of 150 hours each, per year; 18 hours stay in port per round trip; 3875 pounds coal per hour while under way (present drives); 817 pounds coal per hour while in port (present drives); 298 tons of coal per round trip (present drives); 13,000 B.t.u. coal; $5.25 per ton for hand-fired coal; and $4.25 per ton for stoker-fired coal.



AT LEFT—MAIN PROPULSION MOTOR OF THE NEW UNITED STATES COAST GUARD CUTTERS ON TEST FLOOR. AT RIGHT—CONTROL FOR THE NEW TURBINE ELECTRIC COAST GUARD CUTTERS

### Greater Thermal Efficiency

From the thermal efficiency standpoint, the turbine has the advantage of the reciprocating engine in that it can utilize higher temperatures and



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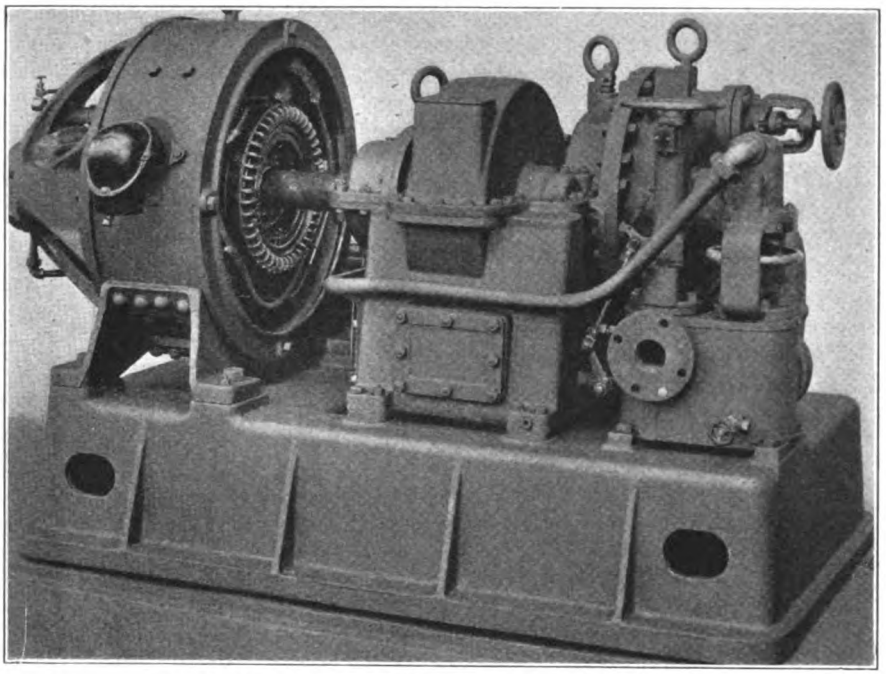

AUXILIARY STEAM TURBINE GEARED GENERATING SET

pressures and provide for 8 to 15 times the number of expansions of the steam. From the operating standpoint, the turbine has the advantage of relative insensibility to water and high superheat. Other operating advantages of the turbine lie in the saving of lubricating oil and simplification of the lubrication problem; the reduction of maintenance and adjustments when properly cared for; absence of vibration, and constant torque.

The proposed geared turbine drive used in this study comprises the following items which differ from those found in the typical Great Lakes vessel.

Stoker-fired watertube boilers.

Combined impulse-reaction, complete expansion turbine with double reduction, floating frame, single case, double helical gear, with self-contained thrust bearing.

Surface condenser with separately driven circulating and condensate pump.

Air ejector.

Closed feed heater.

Lubricating system.

Auxiliary generator plant and electrical auxiliaries.

The steam conditions are 300 pounds gage at the boilers, 125 degrees superheat, 550 degrees total temperature and 28 inches vacuum.

Two cases have been analyzed, one using steam driven engine room auxiliaries, and the other using electrically driven engine room auxiliaries for those applications in service most of the time.

Heat balance studies have been worked out to determine the coal consumption for the geared turbine driven ship. One stage feed heating has been used, heating the feed water to 231 degrees Fahr. by exhaust steam at 10-pound pressure gage. All excess auxiliary exhaust not required for heating the feed is admitted to the turbine and does work before entering the condenser. The air ejector steam is condensed in the intermediate and after condenser by the condensate and raises the temperature of the condensate before it is admitted to the feed tank. The condensate from the heating and deck lines and also from the heater are run to the feed tank.

All auxiliaries except the circulating pump drive and the stoker drive use saturated steam from the boiler in order that they will not be troubled with the superheat. As the stoker and circulating pump take superheated steam, assurance is had of a flow of steam through the superheater at all times. This constant flow of steam protects the superheater from being damaged, and also prevents excessively hot steam to the turbine on starting up, after standing by for such time as would otherwise allow the superheater to become excessively hot.

To transmit 2000 shaft horsepower a total of 28,375,000 B.t.u. per hour must be given up by the coal. Assuming 13,000 B.t.u. per pound of coal and a boiler efficiency of 84 per cent, the expected coal consumption per hour with steam driven auxiliaries would be 2598 pounds. Similar heat balance calculations with electrically driven auxiliaries show an expected coal consumption of 2428 pounds. In other words, geared turbine with steam auxiliaries reduces the fuel consumption to 67 per cent and with electric auxiliaries to 62.5 per cent.

### Saving With Electric Auxiliaries

Similar heat balance calculations for steam and electric auxiliaries in port show the expected coal consumption with steam auxiliaries to be 817 pounds per hour, and with electric auxiliaries 675 pounds per hour. This limited reduction is explained principally by the relatively low port load.

The coal consumption in tons for a round trip from Conneaut, O., to Duluth, Minn., and return, assuming 150 hours underway and 18 hours in port, would be:

| | |
|---|---|
| Reciprocating engine steam auxiliaries | 298 |
| Geared turbine—steam auxiliaries | 202 |
| Geared turbine—electrical auxiliaries | 188 |

The saving in weight due to the use of geared turbines and water tube boilers is as follows:

| | Reciprocating | Turbine |
|---|---|---|
| Engine complete with thrust | 220,000 | 114,600 |
| Condenser with water | 12,000 | 32,500 |
| Boiler with water | 538,000 | 200,000 |
| Stoker with conveyor | ..... | 57,000 |
| Excess weight of bunker coal | 184,000 | ..... |
| Lubricating system | 1,000 | 5,000 |
| Lubricating oil | 2,000 | 7,500 |
| Total, pounds | 957,000 | 416,000 |

This gives a net weight saving of 540,400 pounds. In addition to the weight saving there is an additional saving in personnel and lubricating oil.

The principal savings including such items as fuel cost, personnel, additional cargo and lubrication resulting from the use of geared turbines instead of reciprocating engines amount to $29,700 per year when using steam-driven auxiliaries, and $31,500 per year when using electrically-driven auxiliaries.

The increased investment is $64,000 and $79,350 respectively. Therefore, the additional investment for the modern machinery with steam-driven auxiliaries will be paid off in 2.2 seasons, and with electrically-driven auxiliaries in 2.4 seasons. With the additional investment paid off in less than three seasons, the geared turbine is the logical drive for use on the Great Lakes ore carriers.

In connection with geared turbines, it will be of interest to know that the United States navy has approximately 12,500,000 shaft horsepower and the American merchant marine about 1,500,000 shaft horsepower of geared turbine drives in service. It also will be of interest to know that the S. S. MAUI, a 10,000 shaft horsepower geared turbine twin screw vessel has logged over 700,000 sea miles and still has the original equipment, and that a large number of 3000-horsepower geared turbine merchant vessels have logged 400,000 miles and



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more since going into service. Also, numerous naval vessels have shown similar records with geared turbine machinery.

**Maneuvering Performance Analyzed**

There appears to be some apprehension on the part of certain Great Lakes interests concerning the sufficiency of the backing power of a geared turbine. The reversing element of the geared turbine is located in the exhaust and for economical reasons is of simple design consisting of impulse blading only. Naturally its efficiency is not as good as that of the ahead element. To make it so would require a practical duplication of the ahead element. Consequently, the astern power of a geared turbine ship under constant sternway is limited to that amount. Sixty per cent astern power will drive the ship at approximately 85 per cent of the astern speed which would be obtained with full power. Fifty per cent power will drive the ship at about 80 per cent of the speed attained by full power. In the case of those battleships having turbine electric drive which give full power and full revolutions astern the speed of advance of the ship is less than ¾ the ahead speed for the same power.

In considering the stopping of ships, the problem becomes one of torque rather than horsepower. Sufficient reverse torque must be applied to the propeller to bring it to rest and then reverse it. Model basin tests conducted by the navy department and published in *Electric Ship Propulsion* by Capt. S. M. Robinson, show that at about 35 per cent ahead revolutions per minute, the torque reaches nearly full load value, and at zero revolutions per minute drops to about 35 per cent and then increases rapidly as the revolutions per minute are increased in the astern direction, reaching full load value at about 40 per cent speed where torque equilibrium is established. These results are based on constant speed of the ship ahead.

In the actual case these torque values are reduced due to the ship slowing down. The characteristics of a turbine are such that for a given steam flow the torque increases with reduction of speed, reaching a maximum at standstill. If, however, steam is admitted when the turbine is being driven in the opposite direction to the flow of steam, the torque will continue to increase above the standstill value. In the case of a reversing element designed for 50 per cent astern horsepower, the torque at the opposed speed condition is appreciably more than full load value, and at 35 per cent ahead speed where the maximum propeller torque occurs, the turbine is about 125 per cent, and can be further increased by providing additional astern blading.

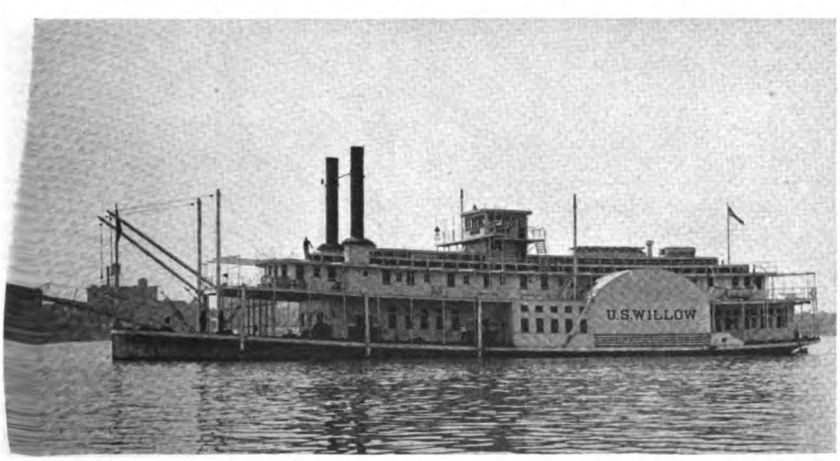
The amount of power that can be put to effective work by a propeller in the reverse direction depends upon the design of the propeller, particularly the ratio of projected area. In any event, it is questionable as to how much additional power can be taken out of the propeller by increasing its speed in the opposite direction beyond, say 40 to 60 per cent while the ship is still going ahead. Therefore, it is felt that the difference in time required to stop a ship will vary but slightly with the different prime movers, provided, of course, that sufficient torque is developed to bring the propeller to rest. By operating the ahead and astern valves by continuous movement of a single control, the reverse torque can be applied very quickly.

In this same connection, it is also interesting to note that destroyers have only 25 per cent to 30 per cent astern power, cruisers 30 to 35 per cent, two of the electric drive battleships 100 per cent, four of the electric drive battleships about 35 per cent and the average turbine drive merchant vessel about 40 per cent to 60 per cent; yet, these ships maneuver satisfactorily.

# Lighthouse Tender Willow for Mississippi

*THE new tender Willow designed for service on the lower Mississippi river between St. Louis and New Orleans was completed and turned over to the government on Sept. 3, 1927, at the yard of the Dubuque Boat and Boiler Co., Dubuque, Iowa.*

*The tender is 200 feet long overall, 65 feet beam over the guards and has a depth of 8 feet. The draft is 5 feet 6 inches. The tender was constructed from designs prepared by the bureau of lighthouses, Washington. A feature of the design is the complete plating of the underside of the guards and the longitudinal stiffening of the hull by the use of a system of bulkheads and girders instead of the usual hog bracing common to river vessels. The upper works and bulkheads are constructed of steel with suitable provisions for ventilation throughout.*




*This vessel is of the independent, side-wheel type having high pressure noncondensing engines with cylinders of 27-inch bore with a stroke of 7 feet, operated by a special inside connected design of valve gear with poppet valves.*

*Steam is supplied by six boilers of the Mississippi river type 28 feet long and 40 inches in diameter operating at 225 pounds per square inch, working pressure and using oil as fuel.*

*The tender is provided with the necessary auxiliary machinery. Heating, plumbing, electric lighting, refrigerating and hot and cold water systems have been installed. Large spacious quarters have been provided for the officers and crew and compartments for storage of cargo and outfit.*

*The Willow in general throughout is well adapted for the work intended and has proved a valuable addition to the fleet of river craft belonging to the government.*



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# Late Decisions in Maritime Law

## Legal Tips for Shipowners and Officers

**Specially Compiled for Marine Review**

**By Harry Bowne Skillman**

***Attorney at Law***

A WHARFINGER is responsible for supplying a berth with so uneven a bottom as to cause a lighter to list and capsize deck cargo at low tide where a boat would be expected to ground at low tide.—Hirsch Lumber Co. v. C. Ottaviano & Co., 18 F. (2d) 952.

* * *

ONE who accepts a cargo intended for him, and as to which he knows bills of lading and charter party are outstanding, without obtaining those papers or inquiring of the master touching their contents, simply takes the risk of what their provisions turn out to be.—United States v. Ashcraft-Wilkinson Co., 18 F. (2d) 977.

* * *

WHEN one group of maritime lienors have duly proceeded in admiralty, another group of maritime lienors will not be permitted to proceed in equity, and by injunction, receivership, etc., obstruct and delay the admiralty group, and dump into the cases all the expenses caused by the equity proceeding; a condition that may seriously deplete the fund ultimately obtained and applicable to the admiralty liens.—ABRAM P. SKIDMORE, 18 F. (2d) 593.

* * *

THE law regarding towage is well settled," said the court in the case of Dameron-White Co. v. Angola Transfer Co., 19 F. (2d) 12. "The tug is not a common carrier, and not an insurer, but is bound to exercise ordinary care and to display competent seamanship in the handling of the tow. The tug is not responsible for accidents occurring through the unseaworthiness of the two for the intended voyage, unless her unseaworthy condition is disclosed, or is so apparent that it would be negligent of the tug to attempt to proceed."

* * *

DEMURRAGE or damages for the loss of profits or of the use of a vessel pending repairs, arising from a collision, are allowable only when profits have actually been, or may reasonably be supposed to have been, lost, and the amount of such profits is proved with reasonable certainty.—Cuyamel Fruit Co. v. Nedland, 19 F. (2d) 489.

* * *

IT IS well established, according to the decision in the case of ARLINGTON, 19 F. (2d) 285, that a tugmaster is not liable for injuries caused by grounding his tow upon an uncharted and unknown rock in the fairway, but he has the burden of so showing, because prima facie he is at fault. Moreover, said the court, if he voluntarily leaves the channel he does so at his peril, though the rock or shoal be both uncharted and unknown. The channel in such cases means the customary and traveled fairway for craft of the description in question, since that alone can become known by repeated traverse.

* * *

WHILE it is lawful for a ferryboat to leave her slip and navigate during a fog, in so doing she is obliged to keep within the requirements of reasonable care in navigation and to have due regard for the rights of others navigating on the river, it was held in the case of New York Central Railroad Co. v. City of New York, 19 F. (2d) 284. While ferryboats are obliged to navigate, having regard for the needs of the public for rapid transit, they are liable if they could avoid collision by the exercise of due care and skill in navigation.

* * *

TUG, placing a barge with a flotilla off a pier, assumed the obligation, and accepted the risk of injury to the barge from ordinary conditions and dangers reasonably to be anticipated. —HERBERT S. KELLER, 19 F. (2d) 527.

* * *

COURTS of admiralty have always liberally entertained jurisdiction on the plea of a seaman for maintenance and cure, particularly where there is no fraud, and serious injury has befallen a libelant through no fault of his own. It is based upon the necessity to prevent a failure or miscarriage of justice. * * * The relation of a seaman to his vessel creates a personal indenture, establishing rights for maintenance and cure in case of personal injury. It results in much liberality of remedy, in order that he may not be defeated of such humanitarian purposes." — MONTE ZUMA, 19 F. (2d) 355.

* * *

AFTER quoting authorities stating that salvage service may consist of saving a vessel or cargo in danger, supplying stores, lowering an anchor, going for assistance, towing, helping to navigate in a storm, piloting into port, and that useful service of any kind rendered to a vessel exposed to any impending danger and imminent peril of loss or damage entitles those rendering it to salvage, the court, in the case of SOUTH AMERICAN, 19 F. (2d) 384, held that warning to change her course, given by a tug to a steamship which heavily listed by shifting of cargo was attempting to enter Savannah river at night, which warning was heeded and saved the ship from stranding and probable total loss, constituted a salvage service. An award of $5000 was entered.

* * *

THE nature and legal effect of a maritime lien are not changed when acquired by the United States," it was decided in the case of FALCON, 19 F. (2d) 1009. The court continued: "But the lien is held, as in the case of a private person, subject to all of the rules of admiralty law. * * * If a lien on a vessel is claimed to the detriment of a purchaser for value, without notice of the lien, the defense of laches is available upon a shorter lapse of time and a more rigid scutiny of the circumstances of the delay than if the claimant had been the owner when the lien accrued. Therefore, the lien will not be enforced against bona fide purchasers without notice, if earlier reasonable opportunity to enforce the lien was neglected. * * * It is not merely the loss of a remedy by lapse of time, but the loss of the right or lien itself which ceases to exist when the rights of other parties intervene after a period during which the holder of the lien has had ample opportunity to enforce it. There is no real distinction in principle between the duty of the United States to act with reasonable promptness, if it would keep alive its right against an offending vessel, and its duty as the holder of negotiable paper to preserve its right of action against an endorser by giving him timely notice. In the one case, as in the other, the United States, having entered the field of private rights, must be bound by its established rules."

* * *

FACT that seaman went to work in a place of danger in obedience to orders of his superior officer, would not of itself, and as a matter of law, relieve him from fault in being there.—B. A. Carrill Stevedore Co. v. Makinda, 20 F. (2d) 19.

* * *

UP TO a certain point a preferred vessel has the right, and, indeed, it is her duty, to maintain her course and speed, and she is not to act upon a mere suspicion or surmise that the approaching vessel will fail to do her duty; but, stated the court in Yamashia Kisen Kabushiki Kaisha v. McCormick Intercoastal Steamship Co., 20 F. (2d) 25, the fact that a steamer is entitled to hold her course does not excuse her from inattention to signals, from answering where an answer is required, or from adopting such precautions as may be necessary to prevent a collision, in case there be a distinct indication that the obligated steamer is about to fail in her duty.



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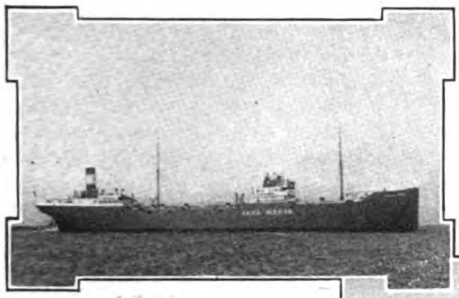
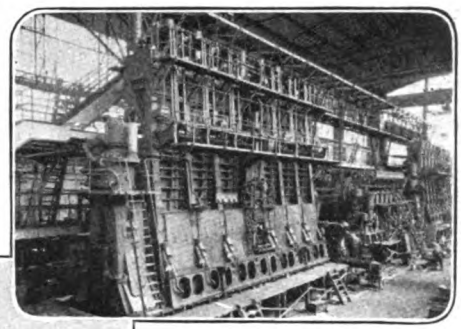
# Latest Marine Events in Pictures



At Left—Diesel tanker, Anna Maersk built at Odense, Denmark, for A. P. Moller L. O. A. 411 ft. 6 in., L. B. P. 390 ft.; beam, 53 ft. 6 in.; depth, 31 ft. 3½ in.; summer draft, 25 ft. 6 in.; dwt., 8110 tons. One B. & W. diesel engine, 2800 I. H. P. at 93 r. p. m. Speed 12.44 knots at 24 ft. 5½ in. draft and 3481 I. H. P. at 105.5 r. p. m.



Above—B. & W. six cylinder, single acting direct reversible diesel engine installed in 8100-ton deadweight tanker, Anna Maersk

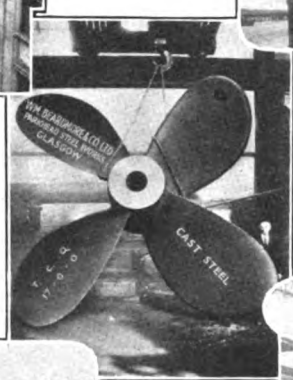
Below—Lloyd's new building in Leadenhall St., London, which was opened by the King, March 24. An interesting account with another view of this building appears in the May number of Marine Review

Above—Steamer Conneaut down bound in St. Clair river at the opening of navigation last year

At Right—Col. Edward C. Carrington, president of Hudson River Night line, proponent of diesel electric automobile ferries from New York to Albany

*Photo by Marceau*

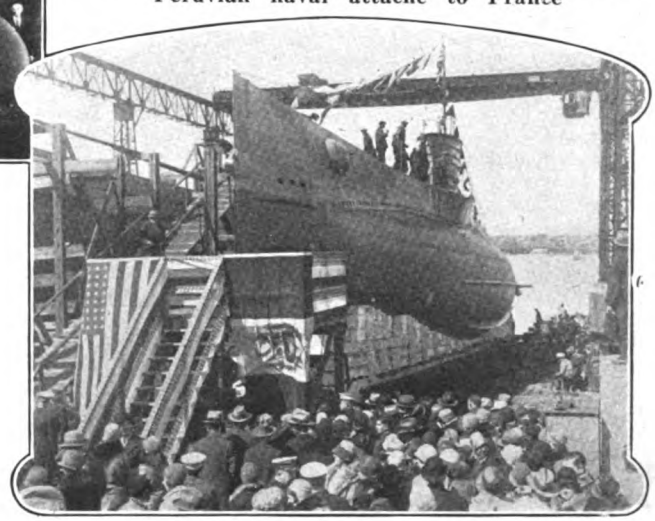
Below—Goodrich steamer, City of Holland, at the central docks, St. Joseph and Benton Harbor, Mich.




At Right—Cast steel propeller for Duchess of Atholl; 18 ft. 9 in. diameter, 17 ft. 6 in. pitch. Expanded surface 132 sq. ft. Weighs 16 tons 18 cwts.

Below—Submarine R-3 built for Peru, launched at New London Ship & Engine Co., Groton, Conn., April 21. Mrs. Hilda F. G. Howe, wife of Admiral A. G. Howe, chief of United States naval mission to Peru, was the sponsor. She was attended by Luisa Aubrey, wife of Commander Luis Aubrey, Peruvian naval attache to France

Below—Erie canal passing through Genesee park in the City of Rochester, N. Y.





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## Salvage Robert E. Lee

The steamer, ROBERT E. LEE, grounded on Mary Ann rocks in Massachusetts bay on March 9. The vessel was in a very difficult position and it was not until the first of May that salvage crews of the Merritt-Chapman and Scott Corp. succeeded in floating her. She was then towed to Boston and went into drydock at the Simpson plant of the Bethlehem Shipbuilding Corp. at East Boston. Inspection showed that the bottom plates were badly damaged practically from stem to stern, the greatest damage occurring on the starboard side and under the keel. A number of plates on the port side were also punctured or cracked. An estimate indicated that 150 bottom plates would have to be replaced. The machinery will have to be thoroughly overhauled and other repairs must be made in the cargoholds, engine room and other hull parts of the vessel. Cabins and staterooms suffered little damage.

The ROBERT E. LEE was finally towed to New York, the contract for repairing the vessel going to Morse Drydock & Repair Co., Brooklyn, N. Y.

Six bids were received for repairs to the ROBERT E. LEE. Morse Dry Dock & Repair Co. was low bidder with a figure of $264,000. Other bids were Newport News Shipbuilding & Dry Dock Co., $385,000; Robins Dry Dock & Repair Co., $333,000; Tietjen & Lang Dry Dock Co., $341,000; W. & A. Fletcher Co., $404,000 and Bethlehem Shipbuilding Corp., $369,000. Repairs will be completed early in August when the vessel will resume service between New York and Norfolk.

## Dean of Engineering

Herbert C. Sadler, D.Sc. LLd., Glasgow, has been appointed dean of the college of engineering and architecture at the University of Michigan. His appointment was announced on April 24. Doctor Sadler came to the university in 1900 as head of the department of naval architecture and marine engineering. A more complete account is given of the career of Professor Sadler in MARINE REVIEW for June, 1927, on the occasion of his going to Glasgow to receive the honorary degree of doctor of laws.

Doctor Sadler's appointment as dean to succeed the famous Professor Cooley is recognition of his outstanding human qualities as well as his high position in his profession. Professor Sadler in the many years that he has been connected with the department of naval architecture and marine engineering at the University of Michigan has also been intimately connected with many important phases of ship design both on the Atlantic and on the Great Lakes. He was one of several leading naval architects consulted on the feasibility from an engineering point of view of the proposed four-day liners. He has acted in a consulting capacity for the corps of engineers United States army in the development of river vessels. He is a member of the technical advisory board and chairman of the committee on naval architecture for the Great Lakes of the American bureau of shipping. He served as consulting naval architect with the Emergency Fleet Corp. during the great period of the war. In addition to his work in naval architecture Professor Sadler is acting head of the department on aeronautical engineering at the university, a course which he was instrumental in founding.

## Pulverized Coal Tests

The distribution of pulverized coal in correct proportion to the different burners has been one of the difficult problems in connection with the use of pulverized coal on board ship. It is therefore interesting to know that there has been developed for this purpose a pneumatic distributor. Members of the fuel conservation committee of the shipping board visited the League Island navy yard on May 9 to observe this device in operation. It is said that this type of distributor was to be installed on the MERCER before commencing her next east bound voyage between New York and Antwerp and Rotterdam in the service of the American Diamond line.

The pneumatic distributor is expected to produce higher efficiency than has been possible so far on the MERCER, even though progress has been made in this direction during recent round voyages. The new device will insure greater evenness of firing and a further simplification of the whole operation is indicated.

Request for bids on pulverized coal installations on the freighters WEST ALSEK and WEST APAUM, vessels of 8500 tons deadweight and 10½ knots speed is being held up, awaiting the completion of tests now under way at the League Island navy yard, Philadelphia. In these tests Fuller Lehigh burners and an improved type of slow motion ball pulverizer are being tried out under the supervision of the Babcock & Wilcox Co. The combination has already been applied with complete success in connection with the watertube boiler by this company. In the tests now under way a scotch marine type of boiler is being used. Other companies are also developing apparatus suitable for burning pulverized coal on shipboard. It is therefore expected that there will be lively competition when bids are asked for the new installations.

## Need Naval Architects

The United States civil service commission announces competitive examinations for associate naval architect at $3000 per year and assistant naval architect at $2400 per year. Applications must be on file with the civil service commission at Washington, not later than June 15. The examinations are to fill vacancies in the United States coast guard, treasury department, and in positions requiring similar qualifications.

A probationary period of six months is required; advancement after that depends upon individual efficiency, increased usefulness, and vacancies.

## White Star Line Report

The annual report of the Ocean Steam Navigation Co. Ltd. the holding company for the White Star line reports a net profit of £566,453 for the year ended Dec. 31, 1927 after interest and federal taxes as compared with £352,793 for 1926. Harold A. Sanderson is president of the line and Lord Kylsant is chairman of the board.

A complete report of the interesting speech made by Lord Kylsant at the annual meeting, appears on page 22 of this issue.

## Elected President

W. D. Lindsey, former executive vice-president of the Garrison Fire Detecting System, was elected president at a meeting of the board of directors on April 26, succeeding the late Richard T. Merrick.

At one time, Mr. Lindsey was employed by the Western Electric Co. first as an engineer and later as advertising man. He has been associated with the Garrison Co., since its organization in 1925.

The Maritime Engineering Corp. of which Rufus W. Putnam is president has moved its office from the Transportation building, 608 South Dearborn street to 205 West Wacker drive, Chicago.



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## Shipbuilding Underway at Bath Iron Works

On May 1 the Bath Iron Works Corp., Bath, Maine had six steel vessels under construction. The first vessel laid down since the yard was re-opened under the management of W. S. Newell, president, is the twin screw steel diesel yacht, VANDA. This vessel is 240 feet long, 36 feet in beam and 22 feet in depth. Her machinery consists of two 1500 brake horsepower bessemer diesel engines.

Other vessels in order, under construction, are: A single screw steel diesel towboat 43 feet long by 10 feet in width with one 50 brake horsepower Cummins diesel engine. Three single screw, steel diesel trawlers. And finally a twin screw steel diesel yacht 138 feet 3 inches in length; 19 feet 2 inches in width and 12 feet 6 inches in depth. This yacht is powered with two 350 brake horsepower Winton diesel engines.

The three trawlers are building for Messrs. O'Hara, Dunn and Busalacchi Bros. The principal dimensions are, length over all, 123 feet 6 inches; length on the water line, 116 feet; beam molded, 23 feet; depth molded amidship, 13 feet 0 inches; depth molded poop, 14 feet 0 inches; draft loaded, approximately 10 feet 6 inches.

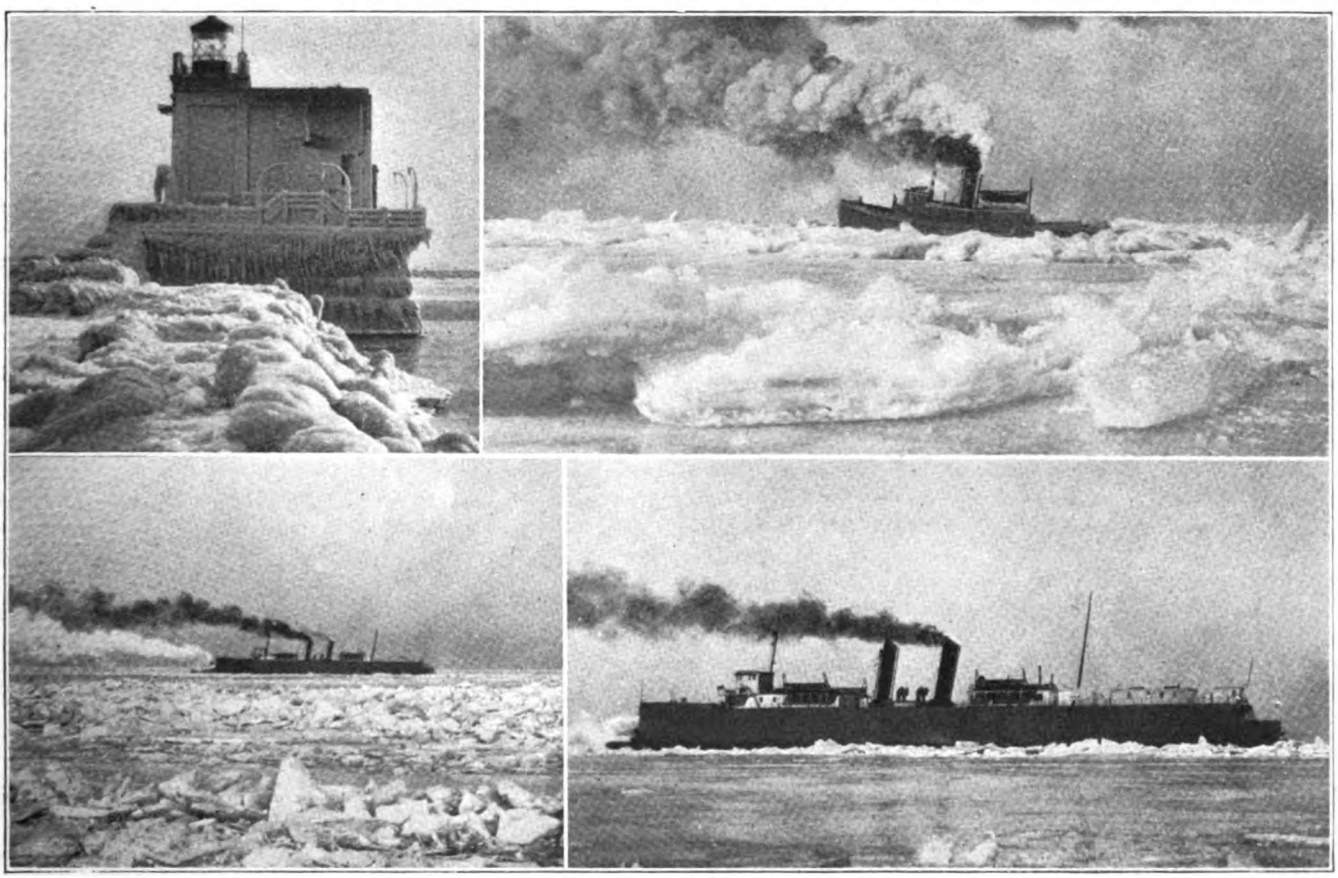
The main propelling machinery is one six cylinder 14 by 17 inches 400 brake horsepower, two cycle, solid injection Fairbanks-Morse diesel engine. These trawlers have a very large clear deck space and a large capacity fish-hold. They are being built entirely under cover and when launched will be practically entirely completed ready for sea.

The Bath Iron Works Corp., though at the moment doing a fair amount of work is not yet near the capacity of the yard and more work is needed and is being sought.

# Severe Ice Formations on Lake Erie

IT IS the custom for the carferry, MAITLAND, No. 1, owned and operated by the Toronto, Hamilton & Buffalo Navigation Co. Hamilton, Ont. to operate the year around, if ice conditions permit, on lake Erie, between Ashtabula, O. and Port Maitland, Ont. carrying freight cars only. On Jan. 27, this year the MAITLAND No. 1 became stuck fast in the ice two miles northeast of Ashtabula harbor. An attempt was made on Jan. 31 by the carferry MARQUETTE & BESSEMER No. 2 of Conneaut, O., to go to her rescue. The latter was unable to render aid and became stuck in the ice several times having to resort to dynamiting to get clear. In going to the MAITLAND the M. & B. No. 2 moved stern first, the agitation of the propellers helping to clear the way. It was with great difficulty and after an all day fight against windrow ice that she returned safely to port at Conneaut.

After being marooned for twelve days the MAITLAND NO. 1 finally was released from the grip of heavy ice floes by the tugs NEW YORK and VERMONT and the carferry MARQUETTE & BESSEMER No. 2. Capt. J. W. Keeley of the MAITLAND reported that no hardships were experienced by the crew during their long siege in the ice. Fires were banked and rations were reduced to two meals a day thus conserving food and fuel. The rescuing carferry was slightly damaged at the stern from the ice but the MAITLAND was not damaged. The tug NEW YORK also received some damage to its rudder.



ON LAKE ERIE—GOING TO AID THE ICEBOUND CARFERRY MAITLAND NO. 1—UPPER LEFT—OVER 100 FEET OF WINDROW ICE TO BREAK THROUGH. UPPER RIGHT—TUG VERMONT FORCING HER WAY THROUGH HEAVY ICE. LOWER VIEWS—CARFERRY MARQUETTE & BESSEMER NO. 2 TRYING TO REACH MAROONED FERRY. PHOTOS BY JOHN DIBBS, CONNEAUT, O.



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## Depth Sounding Device Used on S. S. Columbus

The first Atlantic liner to install an echo sound depth finder, known as the fathometer, is the North German Lloyd steamer COLUMBUS, which is now using it regularly in getting into and out of port at times when other vessels are compelled to anchor, or at least grope along slowly.

"The North German Lloyd has adopted the fathometer in the first place because it is a practical device contributing materially to safe navigation, and secondly because the North German Lloyd intends to be the first to make use of modern scientific achievements as applied to ocean transportation," said H. Schuengel, general manager for the company in the United States.

The greatest usefulness of the fathometer is in approaching port at night or in a fog. Capt. N. Johnsen of the COLUMBUS, who has been using the fathometer for some time, said upon the last arrival of his ship in New York that it has proved invaluable in supplying him with constant information. "It has solved the problem of depth sounding in a way that has been needed for centuries," he said, "and by giving a constant knowledge of depth has made it possible also to know our position."

Navigating officials on the COLUMBUS have on the bridge the usual charts showing the depths of the ocean. On these charts have been drawn lines indicating the best approaches to New York on westbound voyages and to Bishop's rock on eastward trips. The fathometer is set in operation on nearing shore and enables the master to pick up promptly his position and course, after which it is merely a matter of following the line into port.

The fathometer utilizes electrical timing of echoes and translates them into depth readings on a clocklike dial, at the rate of 100 to 200 a minute. The range of the fathometer is shown by the fact that it will give accurate depth measurements from 6 fathoms to 3000 fathoms, or more than three miles.

In all the centuries since sea travel began, ship masters have been compelled to rely principally upon the line and lead for information of depth. It was necessary to heave these overboard and make an actual measurement of the line paid out, which would not be accurate if the ship were moving, and would require a considerable delay to progress if the ship were stopped. Five or six soundings an hour were the most that could be expected. The fathometer now gives up to 14,000 soundings an hour with the ship at full speed.

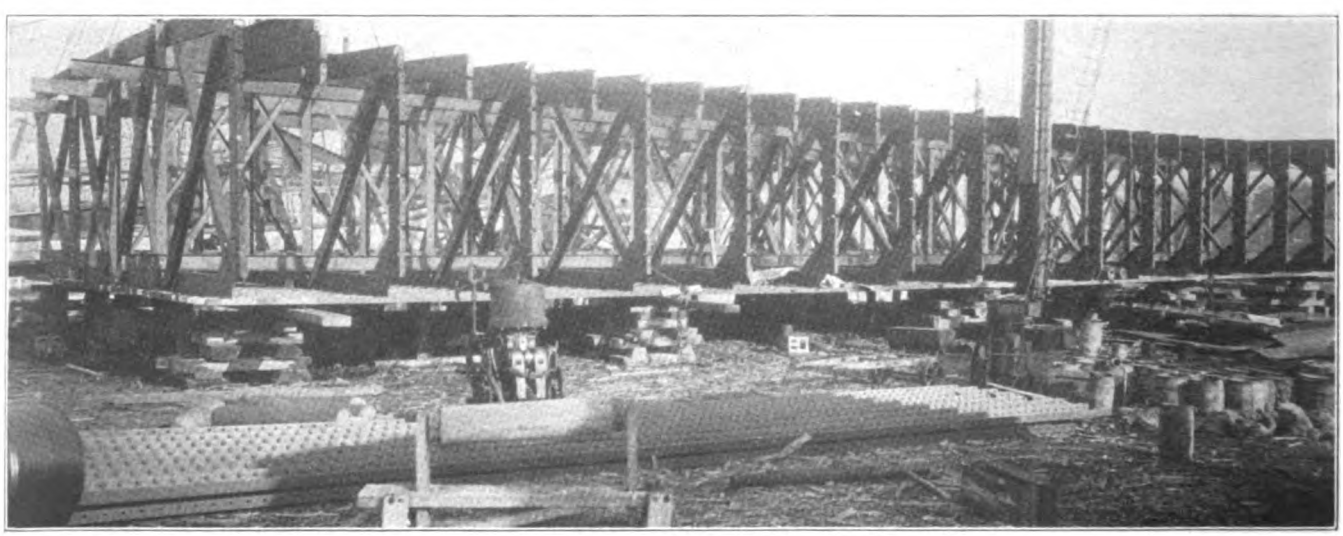
This automatic electrical sounding device is contained on the bridge of the ship. The master presses a button to start it in operation, and before his hand has left the button the readings of depth are being shown more rapidly than the ticks of a clock and as easily noted. Installations have been made on eight vessels of the United States coast and geodetic survey, which use it in making the charts supplied to shipping. German and Japanese surveys have also adopted the fathometer.

# Fabricate Channel Steel for Barge

THE accompanying illustration shows a barge built on the Ellis channel system of steel hull construction. The barge was recently completed for the New York & Hastings Steamboat Co., a subsidiary of the Anaconda Copper Mining Co., by the Midland Barge Co., Midland, Pa., a subsidiary of the Treadwell Co., New York.

The barge measures 115 x 34 x 10 feet. All the steel material for this vessel was fabricated at Midland, in the shops of the Midland Barge Co., riveted up in large sections and shipped to the Smith & Williams Co., Salisbury, Md., where it was erected and completed by the Midland Barge Co.'s representative in a remarkably short time. All of the transverse frames were erected in one day. The wood deck and cabin work was done by the Smith & Williams Co. This vessel has a capacity of 900 tons and is being used for carrying pig copper and lead from Hastings-on-Hudson, N. Y., to Perth Amboy, N. J., requiring river and bay service.

The accuracy of the work done by the Midland Barge Co. in fabricating these frames was remarkable, not a hole had to be reamed, the frame being dropped down in place and then bolted up by common labor—men who had had no previous experience in erection of steel work. Notwithstanding the distance that these frames were transported, they arrived in perfect condition requiring no straightening.



A CHANNEL STEEL CONSTRUCTION BARGE IN PROCESS OF ERECTION AT THE YARD OF SMITH & WILLIAMS, SALISBURY, MD.



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# What the British Are Doing

**Short Surveys of Important Activities in Maritime Centers of Island Empire**

LLOYDS shipbuilding returns for the quarter ended March show a reduction of 139,000 tons in the work in hand, compared with the figures in December which were the highest reached since September 1922. The March total 1,440,842 tons was about 224,000 tons higher than the tonnage building at the end of March 1927. The tonnage building abroad was 1,452,409 tons. Only five countries abroad had more than 100,000 tons under construction, namely Germany 443,939 tons, Italy 171,016, Holland 162,973, France 103,494 and Denmark 103,110 tons.

* * *

A DECIDED improvement is reported in shipbuilding on the Tees. During the first quarter W. Gray & Co. launched at West Hartlepool, three vessels of a total of 25,695 tons deadweight as compared with three vessels aggregating 25,645 tons deadweight for the corresponding period of 1927. In addition the firm launched at its Wear shipyard two vessels representing a total of 17,195 tons. Furness Shipbuilding Co. launched from Haverton Hill shipyard two vessels of 4342 tons and 10,843 tons respectively. Smiths Dock Co., Ltd., of Southbank launched five vessels aggregating 9915 tons, and Craig Taylor & Co., Ltd., of Stockton launched one vessel of 5050 tons. The launches from Smiths Dock included the steamship S. S. STILLWATER built to the order of the Water Transports Ltd., Montreal, for service on the Great Lakes and the Gulf of St. Lawrence. Five other Lake steamers are under construction by the same company for Canadian owners.

* * *

SIR GEORGE B. HUNTER of Swan Hunter & Wigham Richardson, Wallsend on Tyne states that his firm has received more orders recently from Norway than from any other country except Britain.

The Grangemouth Dock Co., Ltd., has completed the new steamer MIRANI built to the order of Burns Phillip & Co. of Sydney and London. This and the sister ship MALAKE have been designed for the owner's special trade with the South Sea Islands. The propelling machinery has been supplied by Mackie & Baxter, Ltd., Govan, Glasgow. They are fitted with three hatches, each having two five ton derricks and also with heavy derrick foremast suitably arranged for quick loading and unloading. The decks are sheathed throughout.

* * *

APRIL was a good month for Clyde shipbuilding, 36 vessels of 32,723 tons being launched from the various yards in Scotland of which 18 vessels of 28,374 tons were sent from the Clyde. The Glasgow achievement was well above the average for the four months and there was an increase of eleven vessels of 113,340 tons compared with last year, and an increase of seven vessels and 71,034 tons compared with 1926. Unfortunately, the berths have not been refilled in a way which promises a continuance of this rate of production and the explanation generally accepted is the promised reduction of local rating in October next year. It is believed that orders are being postponed as long as possible in the expectation of lower prices. This is rather remote, and buyers are being warned that in view of probable increases in labor costs they may have to pay more instead of less.

* * *

TWO vessels have been launched on the Tyne making five launches in a week. The JUDWICA is the first of two passenger steamers ordered by the Polish State Steamship Co. from Palmers Shipbuilding & Iron Co., Jarrow. Other steamers have been ordered by the Tempus Shipping Co., Cardiff, from the Northumberland Shipbuilding Co., Howden.

## Sell Australian Line

Giving up government ownership, Australia has accepted the offer of Lord Kylsant for the purchase of the Commonwealth line at a price of £1,900,000. The fleet consists of five passenger and cargo steamers of 14,000 tons each and two freighters. The line from now on will be known as the Aberdeen and Commonwealth line and will be operated by George Thompson & Co.

Frank C. Munson, president of the Munson Steamship line, commenting on the sale, said it held the greatest significance for the shipping industry in that it seems to prove the inadequacy of government ownership and operation and the practical certainty since such an experienced shipping man as Lord Kylsant thinks so, that the line can be made to pay and be built up under private ownership and operation.

## Grace Line Motorship Santa Maria

The new Grace Line motorship, SANTA MARIA sailed on May 10 on her maiden trip from New York to the West coast of South America via Havana and Panama canal. During her stay in New York the SANTA MARIA created great interest. A series of inspections, luncheons and formal dinners were held on board. Her speed of 16½ knots makes it possible to allow passengers on this vessel to spend a day in Havana and still arrive at the Panama canal six days out of New York.

In a speech made on board the SANTA MARIA at a luncheon May 2 to 150 bankers, industrialists and steamship owners and operators, Joseph P. Grace, president of the W. R. Grace & Co. said in part: "The SANTA MARIA is the first modern diesel passenger liner to sail under the American flag. We feel that she marks a forward step in keeping the American flag on the high seas. She has been carefully designed to make the trip shorter and more comfortable between New York, Havana, Panama and the ports which serve Peru, Bolivia and Chile.

"For more than fifty years we have followed the trade routes to these countries, with sailing vessels around Cape Horn, with freight steamers via Magellan and with passenger vessels through the Panama canal. Our passenger line under the American flag was the first direct service to connect New York and the West Coast of South America and is again taking the lead in the adoption of diesel liners.

"From the earliest days our effort to keep transportation facilities ahead of the trade has been rewarded by a steady growth in the South Ameri-



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can countries which we serve. We have seen these countries go ahead with no uncertain step and become centers for great industries. Their present social and commercial standing is the direct result of the vigor, enterprise and intelligence of their leading men of this generation."

The SANTA MARIA and her sister ship, the SANTA BARBARA both built in Great Britain are 15,000 ton vessels with a length over all of 486 feet, a beam of 64 feet and a sea speed of 16½ knots. There are accommodations for 157 passengers on five decks in 28 single bedrooms, 49 double bedrooms, practically all of which have private baths, and four special suites de luxe. All rooms are outside and are equipped with hot and cold running water and electric fans. Spacious decks afford ample room for sports, dancing, promenading or lounging under practically all conditions of weather.

Among the guests on board the SANTA MARIA were: Gale H. Carter, president of the Grace line; Ira A. Campbell, counsel for the American Steamship Owners' association; James French, of Lloyd's Register; Capt. C. A. McAllister and others.

## Marine Statistics for Jacksonville

(Exclusive of Domestic)

| Month | —Entrances— No. ships | Net tonnage | —Clearances— No. ships | Net tonnage |
|---|---|---|---|---|
| April, 1928 | 26 | 68,581 | 26 | 61,939 |
| March | 25 | 65,435 | 28 | 68,630 |
| February | 31 | 70,881 | 28 | 58,896 |
| January | 26 | 71,686 | 27 | 71,721 |
| December | 25 | 59,744 | 27 | 72,636 |
| November | 33 | 72,807 | 30 | 74,376 |
| October | 26 | 66,539 | 24 | 62,881 |
| September | 21 | 56,916 | 24 | 58,165 |
| August | 30 | 77,997 | 31 | 86,771 |
| July | 26 | 69,813 | 27 | 63,595 |
| June | 32 | 79,910 | 26 | 65,919 |
| June, 1927 | 32 | 79,910 | 26 | 65,919 |

# Ocean Freight Rates

**Per 100 Pounds Unless Otherwise Stated**

**Quotations Corrected to May 19, 1928 on Future Loadings**

**NOTE: FREIGHT RATES STEADY WITH SLIGHT CHANGE**

| New York to | Grain | Provisions | Cotton (H. D.) | Flour | General cargo cu. ft. | General cargo 100 lbs. | ††Finished steel | REMARKS Freight Offered |
|---|---|---|---|---|---|---|---|---|
| Liverpool | 1s 9d‡ | $0.60 | $0.40 | 0.20 | $0.50 | $0.90 | $8.00T*** | Fair |
| London | 1s 9d‡ | 0.60 | 0.40 | 0.20 | 0.50 | 0.90 | 8.00T*** | Fair |
| Oslo | $0.15 | 0.45 | 0.50 | 0 30 | 0.42½ | 0.85 | 8.00T | Fair |
| Copenhagen | 0 15 | 0 45 | 0.50 | 0.30 | 0.50 | 1.00 | 8.00T | Fair |
| Hamburg | 0.10 | 0.45 | 0.45 | 0.22 | 0.50 | 0.90 | 10.00T | Quiet |
| Bremen | 0.10 | 0.35 | 0.45 | 0.22 | 0.50 | 0.90 | 10.00T | Fair |
| Rotterdam and Amsterdam | 0.10 | 0.32½ | 0.35 | 0.23 | 0.40 | 0.75 | 9.50T | Fair |
| Antwerp | 0.09 | 0.32½ | 0.30 | 0.23 | 0.45 | 0.80 | 7.50T | Fair |
| Havre | 0 09 | 0.55 | 0.31 | 0.30 | 0.45 | 0.80 | 9.00T | Very quiet |
| Bordeaux | 0 09 | 0.55 | 0.31 | 0.30 | 0.45 | 0.80 | 9.00T | Very quiet |
| Barcelona | .... | 0.50 | 0.30 | 10.00 bags | —12.00T— | | 10.00T | Fair |
| Lisbon | .... | 0.65 | 0.45 | 8.00T bags | —23.00T— | | 8.00T | Poor |
| Marseilles | .... | 0.65 | 0.40 | 7.00 bags | —23.00T— | | 8.00T | Poor |
| Genoa | 0.13 | 14.25T | 0.50 | 9.00 | —23.00T— | | 11.50T | Quiet |
| Naples | 0.13 | 14.25T | 0.50 | 9.00 | —23.00T— | | 11.50T | Quiet |
| Constantinople | 0.27 | 20.00T | 0.75 | 0.40½ | —24.00T— | | 11.50T | Quiet |
| Alexandria | .... | 20.00T | 0.75 | 0.40½ | —24.00T— | | 11.50T | Quiet |
| Algiers | .... | 0.75 | 0.60 | 8.0T bags | —23.00T— | | 11.50T | Poor |
| Dakar | .... | 17.00 | .... | 15.50T | —23.00T— | | 11.50T | Fair |
| Capetown | .... | 18.00 | .... | 13.00 | 20.00 | | 13.00 to 18.00 | Quiet |
| Buenos Aires | .... | 22.00T | .... | .... | 20.00 to 22.00T† | | 8.00 to 8.80T | Fair |
| **Rio de Janeiro | .... | 22.00T | .... | .... | 20.00 to 22.00T† | | 7.00 to 7.70T† | Fair |
| Pernambuco | .... | 22.00T | .... | 9.00T | —22.00T—† | | 9.70T† | Fair |
| Havana | 0 30* | 0.50 | .... | 0.30* | 0.61 | 1.33 | 10 00 | Fair |
| Vera Cruz | 0.25 | 0,30 | 0.35 | 0.25 | 0.52½ | 1.05 | 0.30 to 0.35 | Fair |
| Valparaiso | .... | 1.07 | .... | 0.70 | .... | .... | 10.00T | Fair |
| San Francisco | .... | 0.35 to 0.70 | .... | 0.40 to 1.10 | .... | ... | 0.25 to 0-30 | Fair |
| Sydney | .... | 18.00T | 1.25 | 18.00T | 18.00-24.00T | | 9.00 to 12.—T | Fair |
| Calcutta | .... | .... | 0.60 | 10.00T | —16.00T— | | 10.00T | Fair |

T—Ton. ‡Per quarter of 480 lbs. †Landed. ††Heavy products limited in length. *Extra charge for wharfage. **Plus $0.50 surcharge on all rates to Rio de Janeiro on account of congestion. ***Plus 15 per cent.

| From North Pacific Ports to | Lumber Per m. t |
|---|---|
| San Francisco | $3.75 to 4 00 |
| South California | 4.00 to 4.50 |
| Hawaiian Islands | 9.00 to 10.00 |
| New Zealand | 15.00 to 18.00 |
| Sydney | 11.00 to 13.50 |
| Melbourne-Adelaide | 12.00 to 14.00 |
| Peru-Chile | 11.75 to 14.00 |
| South Africa | 17.00 to 20.00 |
| Cuba | 14.00 to 15.00 |
| United Kingdom | 67s 6d to 70s |
| Baltimore-Boston range | $13.50 to 14.50 |
| Florida Range | No rates |
| Buenos Aires | 14.00 |
| South America — East Coast | 14.00 to 17.00 |
| South America — West Coast | 11.75 to 14.00 |
| China | 9.50 to 10.00 |
| Japan | 8.25 to 9.25 |
| Japan (logs) | 12.00 to 14.00 |
| Atlantic—Gulf | 12.00 to 13.00 |

**Flour and Wheat**

| | |
|---|---|
| U. K. and Continent (gross ton) | 27s to 30s |
| Oriental Ports (net tons) | $3.50 to 4.50 |

NOTE: Lighterage rates on fuel in New York reduced from 6½ to 5½c per barrel. The coal strike in Britain is now settled and freight rates or bunker prices for coal or pig iron are again quoted.

General cargo rates to Havana change daily and are omitted for the time being.

Rates to Calcutta are subject to change without notice. Cotton goes only to Bombay. Landing charge of $2.00 per freight ton at Valparaiso.

### Principal Rates To and From United Kingdom

| | s | d |
|---|---|---|
| Grain, River Plate to United Kingdom | 23 | 3 |
| Coal, South Wales to Near East | 9 | 9 |
| Coal, United Kingdom to Buenos Aires | 10 | 0 |
| Manganese Ore, Poti to Philadelphia | $3.50 | |
| Pig iron, United Kingdom to New York or Philadelphia | 12 | 6 |
| Iron ore, Bilbao to Cardiff | 5 | 9 |
| Iron ore, Huelva to Phila. or Balto | 11 | 6 |

## Bunker Prices

### At New York

| | Coal alongside per ton | Fuel oil alongside per barrel | Diesel engine oil alongside per gallon |
|---|---|---|---|
| July 19, 1927 | 5.65 | 1.65 | 5.24c |
| Aug. 19 | 5.50 | 1.71½ | 5.15 |
| Sept. 20 | .... | 1.65 | 5.04 |
| Oct. 20 | 5.65 | 1.61 | 5.13 |
| Nov. 18 | 5.50@5.65 | 1.46½ | 5.15 |
| Dec. 20 | 5.35@5.65 | 1.41½ | 5.15 |
| Jan. 19 | 5.25@5.60 | 1.41½ | 5.15 |
| Feb. 20 | 5.25@5.60 | 1.40 | 4.92 |
| Mar. 20 | 5.00@5.60 | 1.40 | 4.92 |
| April 19 | 5.00@5.60 | 1.40 | 4.92 |
| May 19, 1928 | 5.00@5.60 | 1.30 | 4.92 |

### At Philadelphia

| | Coal trim. in bunk per ton | Fuel oil alongside per barrel | Diesel Eng. oil alongside per gallon |
|---|---|---|---|
| July 19, 1927 | 5.00@5.25 | 1.65@1.70 | 5.10@5.12c |
| Aug. 19 | 5.25 | 1.70@1.71 | 5.12@5.14 |
| Sept. 20 | 5.25 | 1.62@1.65 | 5.12@5.13 |
| Oct. 20 | 5.65 | 1.56 | .... |
| Nov. 18 | 5.20@5.65 | 1.45@1.46 | 4.88@5.12 |
| Dec. 20 | 5.20@5.65 | 1.32@1.35 | 4.88@5.12 |
| Jan. 19 | 5.25@5.60 | 1.22@1.25 | 4.90@5.12 |
| Feb. 20 | 5.25@5.60 | 1.21@1.25 | 4.90@5.12 |
| Mar. 20 | 5.00@5.60 | 1.21@1.25 | 4.64@4.87 |
| April 19 | 5.00@5.60 | 1.21@1.25 | 4.64@4.87 |
| May 18, 1928 | 5.00@5.60 | 1.20@1.25 | 4.87 |

### Other Ports

| | |
|---|---|
| Boston, coal, per ton | .... |
| Boston, oil, f. a. s., per barrel | .... |
| Hampton Roads, coal, per ton, f.o.b., piers | $4.25 to 4.50 |
| May 8 — Cardiff, coal, per ton | 12s 9d |
| London, coal, per ton | —s —d |
| Antwerp, coal, per ton | 18s 6d |
| Antwerp, Fuel oil, per ton | 80s0d |
| Antwerp, Diesel oil, per ton | 90s 0d |
| British ports, Fuel oil | 70s 0d |
| British ports, Diesel oil | 85s 0d |



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# Marine Business Statistics Condensed

## Record of Traffic at Principal American Ports for Past Year

### New York

(Exclusive of Domestic)

| Month | —Entrances— No. ships | Net tonnage | —Clearances— No. ships | Net tonnage |
|---|---|---|---|---|
| April, 1928 | 566 | 2,487,959 | 541 | 2,359,979 |
| March | 548 | 2,338,855 | 578 | 2,449,705 |
| February | 513 | 2,205,204 | 501 | 2,135,910 |
| January | 540 | 2,160,576 | 512 | 2,146,026 |
| December | 436 | 1,770,154 | 548 | 2,222,409 |
| November | 543 | 2,243,752 | 474 | 2,069,106 |
| October | 485 | 2,105,364 | 531 | 2,221,372 |
| **September** | **498** | **2,153,701** | **565** | **2,428,200** |
| August | 522 | 2,179,068 | 551 | 2,287,367 |
| July, 1927 | 478 | 1,910,229 | 553 | 2,253,495 |

### Philadelphia

(Including Chester, Wilmington and the whole Philadelphia port district)
(Exclusive of Domestic)

| Month | —Entrances— No. ships | Net tonnage | —Clearances— No. ships | Net tonnage |
|---|---|---|---|---|
| April, 1928 | 109 | 261,735 | 60 | 140,547 |
| March | 95 | 254,304 | 65 | 167,100 |
| February | 88 | 239,768 | 53 | 152,545 |
| January | 81 | 206,710 | 54 | 141,408 |
| December | 81 | 206,171 | 42 | 108,935 |
| November | 78 | 193,676 | 43 | 99,965 |
| October | 94 | 211,988 | 63 | 136,871 |
| **September** | **77** | **188,481** | **50** | **95,898** |
| **August** | **99** | **235,657** | **70** | **153,305** |
| July, 1927 | 83 | 186,182 | 53 | 110,614 |

### Boston

(Exclusive of Domestic)

| Month | —Entrances— No. ships | Net tonnage | —Clearances— No. ships | Net tonnage |
|---|---|---|---|---|
| April, 1928 | 110 | 348,360 | 65 | 205,257 |
| March | 108 | 348,026 | 67 | 194,408 |
| February | 100 | 301,053 | 50 | 160,330 |
| January | 102 | 328,779 | 61 | 197,133 |
| December | 91 | 255,980 | 52 | 169,150 |
| November | 98 | 320,340 | 63 | 178,707 |
| October | 107 | 380,655 | 69 | 244,265 |
| September | 114 | 375,509 | 83 | 243,244 |
| **August** | **149** | **441,819** | **96** | **285,25b** |
| July, 1927 | 147 | 401,008 | 103 | 326,695 |

### Portland, Me.

(Exclusive of Domestic)

| Month | —Entrances— No. ships | Net tonnage | —Clearances— No. ships | Net tonnage |
|---|---|---|---|---|
| April, 1928 | 20 | 51,854 | 19 | 50,175 |
| March | 20 | 58,110 | 22 | 63,400 |
| February | 18 | 44,067 | 17 | 47,032 |
| January | 21 | 57,757 | 18 | 48.294 |
| December | 23 | 50.380 | 23 | 55.280 |
| November | 25 | 42.291 | 26 | 40.248 |
| October | 32 | 60,920 | 35 | 71,587 |
| **September** | **32** | **68,688** | **32** | **61,227** |
| August, 1927 | 33 | 61,873 | 32 | 58,949 |

### Providence

(Exclusive of Domestic)

| Month | —Entrances— No. ships | Net tonnage | —Clearances— No. ships | Net tonnage |
|---|---|---|---|---|
| April, 1928 | 4 | 15,670 | 3 | 12.362 |
| March | 7 | 27,885 | 6 | 26,037 |
| February | 3 | 6,656 | 4 | 17,543 |
| January | 4 | 20,931 | 4 | 18,817 |
| December | 4 | 11,618 | 5 | 21,125 |
| November | 4 | 16,374 | 2 | 9,920 |
| October | 7 | 24,736 | 1 | 2,875 |
| **September** | **4** | **12,240** | **4** | **14,109** |
| **August** | **5** | **27,235** | **1** | **4,035** |
| July, 1927 | 11 | 37,384 | 5 | 17,628 |

### Portland, Oreg.

(Exclusive of Domestic)

| Month | —Entrances— No. ships | Net tonnage | —Clearances— No. ships | Net tonnage |
|---|---|---|---|---|
| April, 1928 | 37 | 137,821 | 41 | 152,042 |
| March | 29 | 111,490 | 49 | 170,655 |
| February | 23 | 86.160 | 35 | 120,026 |
| January | 37 | 130.578 | 50 | 183,254 |
| December | 34 | 134,562 | 61 | 228,472 |
| November | 38 | 141,747 | 70 | 247,571 |
| October | 57 | 208,738 | 70 | 254,270 |
| **September** | **59** | **211,182** | **79** | **291,920** |
| **August** | **32** | **117,116** | **47** | **157,715** |
| **July, 1927** | **31** | **110,966** | **35** | **119,824** |

### Baltimore

(Exclusive of Domestic)

| Month | —Entrances— No. ships | Net tonnage | —Clearances— No. ships | Net tonnage |
|---|---|---|---|---|
| April, 1928 | 140 | 396,942 | 134 | 394,124 |
| March | 128 | 391,117 | 137 | 408,927 |
| February | 134 | 412,110 | 135 | 399,729 |
| January | 116 | 354,307 | 120 | 374,617 |
| December | 129 | 406,889 | 132 | 398,587 |
| November | 103 | 330,488 | 110 | 323,665 |
| October | 118 | 365,876 | 116 | 350,509 |
| **September** | **116** | **355,924** | **130** | **402,528** |
| August | 131 | 390,713 | 138 | 408,083 |
| July, 1927 | 128 | 384,450 | 130 | 368,096 |

### Norfolk and Newport News

(Exclusive of Domestic)

| Month | —Entrances— No. ships | Net tonnage | —Clearances— No. ships | Net tonnage |
|---|---|---|---|---|
| April, 1928 | 15 | 35,122 | 81 | 189,564 |
| March | 18 | 39,102 | 89 | 209,171 |
| February | 13 | 32,925 | 77 | 206,630 |
| January | 14 | 29,831 | 75 | 202,997 |
| December | 17 | 35,439 | 78 | 207,636 |
| November | 23 | 51,726 | 78 | 206,978 |
| October | 25 | 65,640 | 77 | 214,940 |
| **September** | **26** | **67,249** | **87** | **240,899** |
| August | 32 | 71,356 | 92 | 222,502 |
| July, 1927 | 42 | 112,442 | 77 | 201,882 |

### Savannah

(Exclusive of Domestic)

| Month | —Entrances— No. ships | Net tonnage | —Clearances— No. ships | Net tonnage |
|---|---|---|---|---|
| December, 1928 | 30 | 93,778 | 36 | 114,845 |
| November | 30 | 98,308 | 35 | 99,833 |
| October | 41 | 119,953 | 39 | 112,138 |
| September | 36 | 108,866 | 40 | 118,431 |
| August | 30 | 90,063 | 30 | 93,030 |
| July | 33 | 96,525 | 30 | 87,055 |
| June | 27 | 67,095 | 30 | 75,193 |
| May | 37 | 103,549 | 37 | 102,757 |
| April | 30 | 87,296 | 26 | 108,150 |
| March, 1927 | 37 | 102,732 | 39 | 114,871 |

### Key West

(Exclusive of Domestic)

| Month | —Entrances— No. ships | Net tonnage | —Clearances— No. ships | Net tonnage |
|---|---|---|---|---|
| April, 1928 | 101 | 75,140 | 102 | 76,450 |
| March | 119 | 96,746 | 112 | 94,408 |
| February | 121 | 91,928 | 109 | 88,819 |
| January | 110 | 85,955 | 123 | 85,750 |
| December | 103 | 91,299 | 101 | 90,557 |
| November | 112 | 92,152 | 107 | 89,156 |
| October | 80 | 87,814 | 83 | 88,587 |
| **September** | **69** | **86,798** | **72** | **88,480** |
| August | 72 | 81,247 | 70 | 84.132 |
| July, 1927 | 78 | 84,790 | 79 | 84,186 |

### Mobile

(Exclusive of Domestic)

| Month | —Entrances— No. ships | Net tonnage | —Clearances— No. ships | Net tonnage |
|---|---|---|---|---|
| April, 1928 | 114 | 217,803 | 105 | 203,515 |
| March | 107 | 242,444 | 97 | 246,634 |
| February | 94 | 271,569 | 83 | 226,210 |
| January | 117 | 309,644 | 82 | 216,381 |
| December | 75 | 189,231 | 73 | 178,068 |
| November | 75 | 161,528 | 79 | 176,885 |
| October | 89 | 210,973 | 97 | 237,282 |
| **September** | **80** | **172,518** | **89** | **195,714** |
| August | 92 | 194,609 | 84 | 184,655 |
| July, 1927 | 94 | 198,668 | 89 | 190,965 |

### Seattle

(Exclusive of Domestic)

| Month | —Entrances— No. ships | Net tonnage | —Clearances— No. ships | Net tonnage |
|---|---|---|---|---|
| April, 1928 | 56 | 226,257 | 54 | 210,908 |
| March | 46 | 191,601 | 46 | 196,371 |
| February | 54 | 210,176 | 53 | 207,173 |
| January | 50 | 206,743 | 62 | 239,133 |
| December | 56 | 232,726 | 58 | 241,398 |
| November | 59 | 231,003 | 68 | 264,841 |
| October | 68 | 268,666 | 69 | 272,875 |
| **September** | **62** | **233,554** | **58** | **227,096** |
| August | 109 | 218,218 | 102 | 203,902 |
| July, 1927 | 45 | 183,023 | 40 | 162,121 |

### New Orleans

(Exclusive of Domestic)

| Month | —Entrances— No. ships | Net tonnage | —Clearances— No. ships | Net tonnage |
|---|---|---|---|---|
| April, 1928 | 254 | 656,537 | 265 | 666,345 |
| March | 265 | 669,301 | 282 | 720,407 |
| February | 238 | 627,445 | 236 | 616,772 |
| January | 271 | 725,935 | 272 | 697,301 |
| December | 240 | 671,775 | 258 | 714,455 |
| November | 226 | 586,013 | 236 | 609,299 |
| October | 260 | 693,720 | 265 | 710,922 |
| September | 232 | 613,772 | 240 | 632,593 |
| August | 276 | 797,128 | 265 | 672,392 |
| July, 1927 | 250 | 615,826 | 241 | 580,228 |

### Charleston

(Exclusive of Domestic)

| Month | —Entrances— No. ships | Net. tonnage | —Clearances— No. ships | Net tonnage |
|---|---|---|---|---|
| April, 1928 | 26 | 60,165 | 21 | 52,590 |
| March | 29 | 79,789 | 27 | 67,472 |
| February | 26 | 74,244 | 27 | 73,168 |
| January | 32 | 83,419 | 52 | 150,260 |
| December | 27 | 65,379 | 25 | 63,354 |
| November | 32 | 77,911 | 33 | 81,978 |
| October | 37 | 95,473 | 36 | 95,070 |
| September | 39 | 102,374 | 39 | 101,044 |
| August | 39 | 108,022 | 35 | 92.227 |
| July, 1927 | 19 | 41,460 | 20 | 44,633 |

### Galveston

(Exclusive of Domestic)

| Month | —Entrances— No. ships | Net tonnage | —Clearances— No. ships | Net tonnage |
|---|---|---|---|---|
| April, 1928 | 32 | 85,685 | 43 | 132,534 |
| March | 35 | 75,924 | 47 | 121,106 |
| February | 27 | 63,696 | 52 | 147,378 |
| January | 32 | 83,419 | 52 | 150,260 |
| December | 34 | 79,353 | 51 | 142,779 |
| November | 43 | 103,885 | 66 | 179,841 |
| October | 69 | 184,154 | 99 | 290,370 |
| **September** | **70** | **200,573** | **97** | **301,105** |
| **August** | **76** | **214,876** | **95** | **274,670** |
| July, 1927 | 77 | 204,961 | 93 | 260,431 |

### Los Angeles

(Exclusive of Domestic)

| Month | —Entrances— No. ships | Net tonnage | —Clearances— No. ships | Net tonnage |
|---|---|---|---|---|
| April, 1928 | 183 | 519,918 | 184 | 498,424 |
| March | 182 | 522,110 | 222 | 483,105 |
| February | 164 | 466,319 | 172 | 439,193 |
| January | 167 | 477,974 | 165 | 437,080 |
| December | .... | ..... | ..... | ..... |
| November | 248 | 507,775 | 185 | 429,101 |
| October | 266 | 573,090 | 202 | 489,442 |
| **September** | **288** | **488,416** | **282** | **441,184** |
| August | 160 | 483,069 | 214 | 473,702 |
| July | 121 | 452,983 | 106 | 407,695 |
| June, 1927 | 178 | 484,561 | 125 | 418,967 |

### San Francisco

(Exclusive of Domestic)

| Month | —Entrances— No. ships | Net tonnage | —Clearances— No. ships | Net tonnage |
|---|---|---|---|---|
| April, 1928 | 157 | 580,506 | 150 | 565,111 |
| March | 179 | 629,773 | 162 | 648,057 |
| February | 158 | 501,080 | 165 | 640,220 |
| January | 145 | 602,389 | 154 | 607,904 |
| December | 171 | 665,944 | 158 | 631,872 |
| November | 139 | 538,160 | 135 | 578,466 |
| October | 173 | 630,193 | 162 | 507,386 |
| **September** | **168** | **600,454** | **152** | **559,684** |
| August | 176 | 636,152 | 150 | 583,653 |
| June, 1927 | 154 | 556,225 | 140 | 526,976 |

### Port Arthur

(Exclusive of Domestic)

| Month | —Entrances— No. ships | Net tonnage | —Clearances— No. ships | Net tonnage |
|---|---|---|---|---|
| March, 1928 | 46 | 127,039 | 47 | 131,741 |
| February | 47 | 144,273 | 44 | 144,508 |
| January | 20 | 69,947 | 20 | 72,185 |
| December | 23 | 67,105 | 21 | 68,602 |
| November | 21 | 64,277 | 25 | 80,084 |
| October | 18 | 50,632 | 25 | 82,177 |
| September | 16 | 51,492 | 29 | 83,728 |
| August | 22 | 58,352 | 27 | 78,652 |
| July | 21 | 61,871 | 34 | 102,998 |
| June | 16 | 44,565 | 26 | 92,198 |
| May, 1927 | 15 | 46,223 | 28 | 83,926 |

**Note: The figures given in this table are for direct entrances and clearances. Additional vessels in foreign trade enter and clear from and to other American ports after original entry and before final departure. At the port of Philadelphia, for instance, additional vessels in the foreign trade in this category were 60 of 200,565 net tons entered and 63 of 213,377 net tons cleared for the month of April.**



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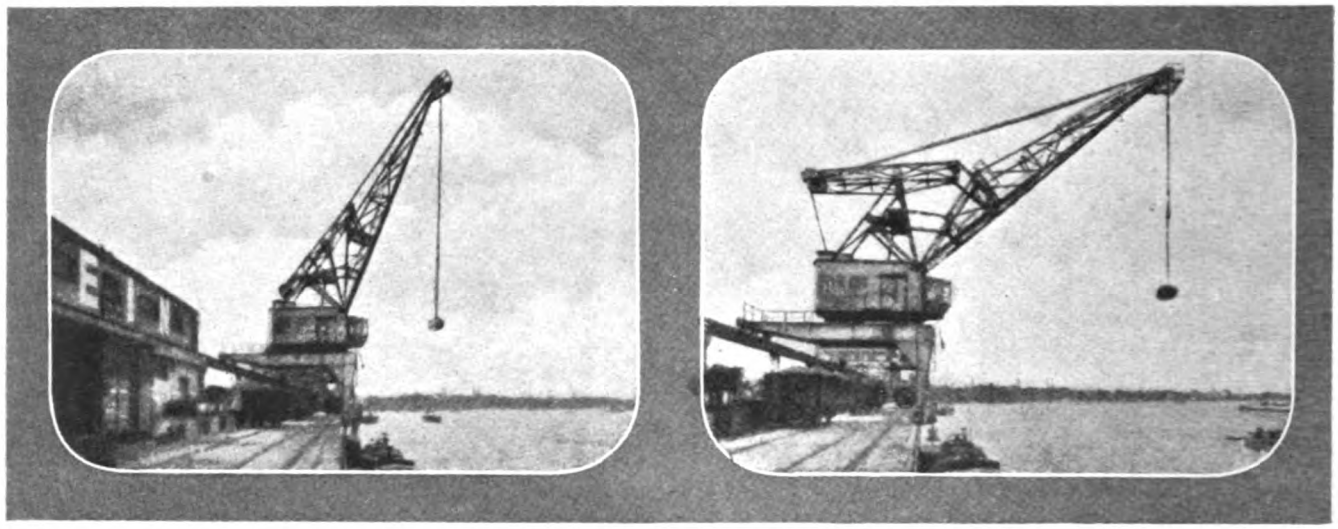
# Dock Management Progress Section

**How Successful Dock Operators Have Met Problems of Giving Best Service to Ships**



*A 5-Ton semi gantry luffing crane at Krefeld, Germany. At Left—Jib hauled close, radius 29 feet, 7 inches. At Right—Jib extended, largest radius 62 feet, 4 inches. Gantry span, 34 feet, 2 inches*

# *Luffing Cranes Are Needed to Reduce Cargo Handling Cost*

QUICK handling of goods arriving at or to be dispatched from shipping ports and other places of trans-shipment depends upon the provision of adequate loading appliances. In all such cases the loading plant must be adapted specifically to the local conditions in any given place, besides considering the nature of the goods dealt with as well as the shapes of the vehicles carrying them. The size and shape of the jibs are a matter of the greatest importance in this respect, so far as the cranes of the loading plant are concerned. The ever increasing sizes of ships and the need of having to trans-ship direct from truck to hold, and vice versa, wherever possible, are two factors that call for constantly increasing jib radii. The cranes are therefore eventually mounted on gantries traveling on rail tracks, or on bridges. The latter are designed to span one or several railway lines, whereas the cranes traveling on them are equipped with jibs of such radius as to enable them to reach the centerline of the ship on the one hand, and to cover as many railway tracks as possible on the other for maximum use.

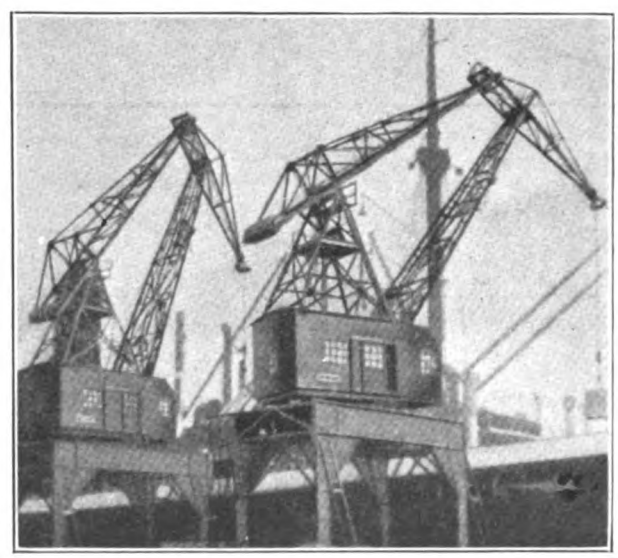


FIG. 1—GANTRY LUFFING CRANES OF 2.5 TONS CAPACITY EACH. JIB RADIUS REDUCIBLE FROM 52 FT. 6 IN. TO 23 FT. GANTRY SPAN: 29 FT. 4 IN.

The increasing lengths of the jibs, however, gave rise to a number of difficulties which impaired expeditious trans-shipping. The much larger circle described by a long jib is a great nuisance for instance, if several cranes are working near one another simultaneously. It will seldom be possible to have two such cranes serving the same hold at the same time, and even where it is possible, it puts an enormous strain on the skill and dexterity of the operators working them, to avoid collisions. It it, of course, possible to let two cranes work on one hold for instance, so that if they slew round in opposite directions, they would not interfere with one another. But in that case their jibs will impinge on the circles described by the cranes working on the next hatch, as the distance between hatches is not wide enough to prevent this. To avoid collisions by



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skipping one hatch between two holds being loaded or unloaded would be an uneconomical procedure. It is far better to have but one crane working on each hatch instead, but even then overlapping of the circles described by the jib heads will scarcely ever be entirely obviated. Further difficulties will moreover be encountered when slewing long jibs above seagoing vessels, because of the many obstacles to be negotiated in the shape of deck superstructures, masts, and rigging. These considerations led to the addition of supplementary motion—luffing the jib—to the two previous ones, i. e. the slewing motion, and the traveling motion parallel with the wharf-edge or the traveling motion of the crane on a bridge. The working cycle of a crane with the supplementary motion therefore now proceeds as follows: After attaching the load to the hook in the hold, the first motion to be performed is hoisting, by which the load is brought to some point above the level of the hatch. At this stage luffing is applied, the jib carrying the load thereby being drawn back towards the center of slewing. This is succeeded by the slewing motion itself which takes place over a very small radius, and finally the jib is run out again to the required new radius.

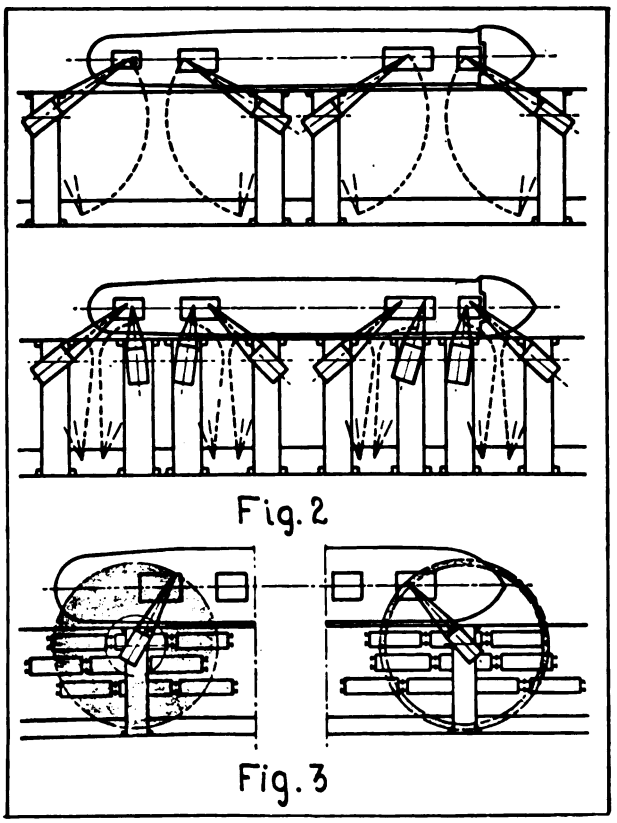
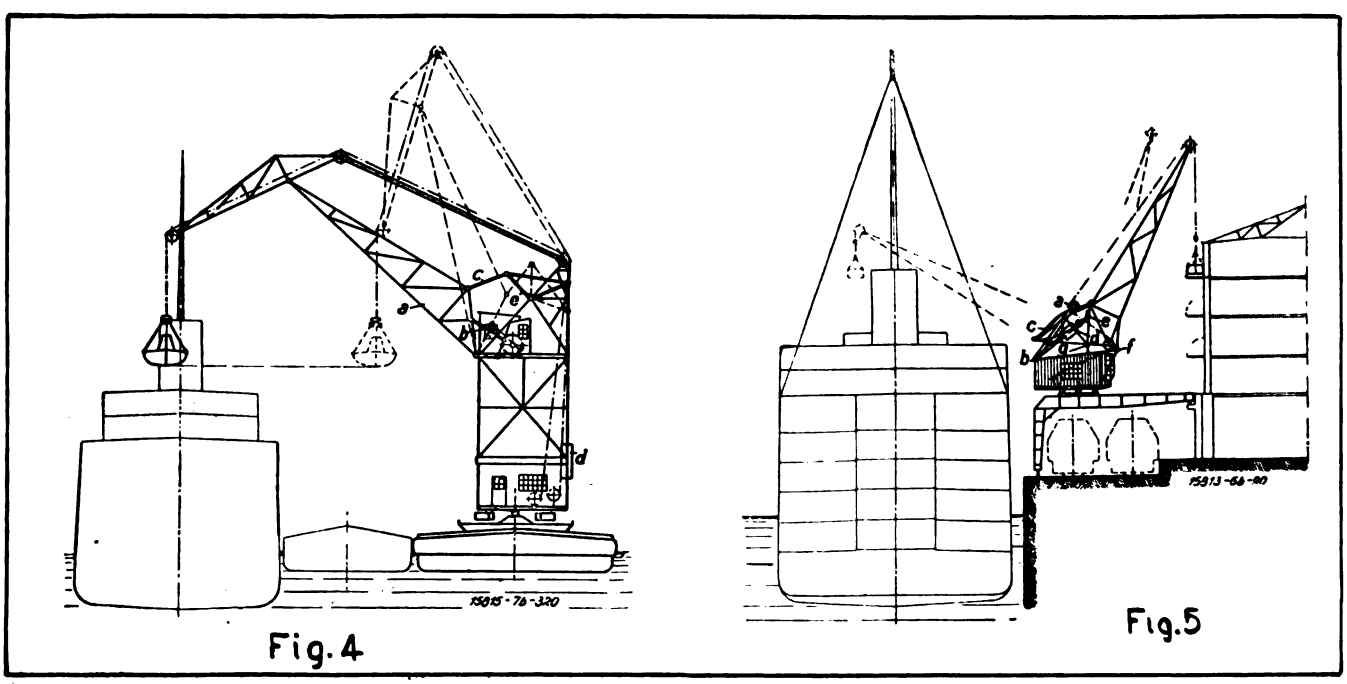



Fig. 2—Comparison: Unloading a sea-going ship with four slewing cranes (at the top) having jibs of 55 ft. 19 in. fixed radius, or with eight luffing cranes (at the bottom) reducing their jib radius from 55 ft. 10 in. to 19 ft. 9 in.

Fig. 3—Field covered by a luffing crane (on the left) and that of a crane with jib of fixed radius, the maximum radius being the same

Cranes with jibs that could be lengthened or shortened when loaded, were first evolved in Great Britain. Local conditions were responsible for this invention. Most British ports, especially the port of London, are so hard up for room that cranes with jibs of fixed radius can scarcely be used at all. If the warehouses are situated close to the wharf-edge, as is frequently the case, making the distance from the warehouse wall to the center of the slewing circle shorter than the distance from the latter to the center-line of the ship, a luffing jib obviously becomes an imperative necessity. Such cranes with luffing jibs are able to deposit or receive their load at any desired point between the wharf-edge and the warehouse wall, despite the lack of space around them. Compared with cranes having jibs of fixed radius, luffing cranes as in Fig. 1, show the following advantages: As the jib must always be withdrawn sufficiently to prevent interference with neighboring cranes before beginning to slew, more cranes can now be employed on one vessel simultaneously than when using other cranes. Careful examination of the hatch plans of numerous sea-going ships showed that in most cases twice as many cranes could be applied to a ship at the same time, and without hampering each other, if luffing cranes were used for the purpose (Fig. 2).

Owing to their adaptability in point of motion, luffing cranes can avoid such obstacles as masts, rigging, or deck superstructures far more quick-




AT LEFT—FIG. 4—TRANSSHIPPING FROM SEAGOING SHIP TO LIGHTER BY MEANS OF FLOATING CRANE WITH LUFFING JIB.
AT RIGHT—FIG. 5—DIAGRAMMATIC SKETCH OF A LUFFING CRANE WITH CURVED GUIDES FOR BALANCING THE ROPES



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ly than ordinary slewing cranes with jibs of fixed radius which often have to perform complicated traveling and slewing maneuvers (moving large dead weights) before being able to reach the hatch or deposit their load at some given point.

### Can Serve Entire Hatch

With an adjustable jib radius it is possible to cover the entire area between the largest and smallest slewing circle, without the crane itself having to shift its position at all. Slewing and luffing alone suffice to bring the hook or grab to any desired part of the hatch or the loading platform, and enable even a number of railway trucks to be loaded or unloaded without having recourse to shunting (Fig. 3).

On floating cranes the motion of the hoisting appliance is usually restricted to slewing alone, and traveling, if any, is confined to the very narrow limits of the pontoon deck. The efficiency of such cranes can, however, be improved considerably by again reverting to luffing jibs. In some cases the luffing motion alone may be sufficient; for instance, when trans-shipping goods from a ship to a lighter, or vice versa. However, this is only possible if the jib is long enough to extend right across the lighter and up to the center-line of the ship as in Fig. 4. In this case handling of the goods certainly takes place by the shortest and therefore quickest and cheapest way.

Fundamentally, two groups of luffing cranes may be distinguished. The first group comprises those in which the jib and luffing gear are rigidly interconnected by a system of levers and links. In the second group the jib is held and luffed by ropes. The cranes of the second group have the disadvantage of losing a good deal of their maneuvering properties and reliability as soon as there is a strong wind blowing against the jib in the direction of the luffing motion. Several types of cranes belonging to this group, moreover, have ropes changing their direction a number of times instead of continuing in a straight line. Owing to the resulting heavy wear on the ropes, these cranes are naturally subject to getting out of order and break-downs. A positive gear connecting the luffing motor and the jib without the use of intermediate ropes anywhere, will therefore undoubtedly be preferable in most cases.

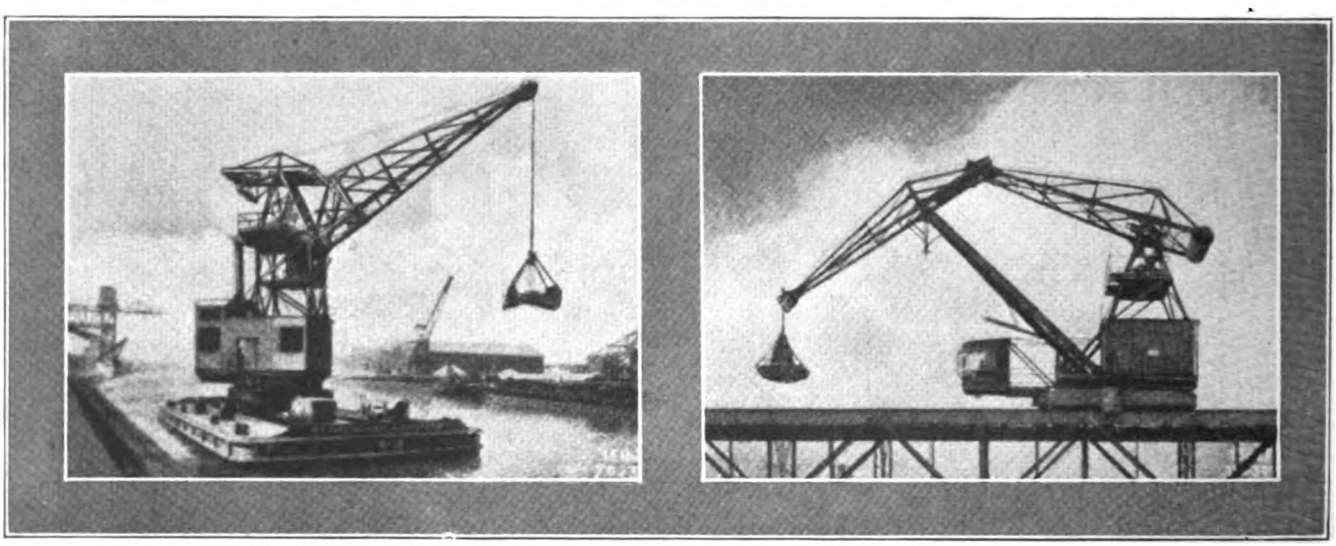
### Level Luffing is Advantageous

The direction in which the jib head moves, when being luffed, is another point in which there is a fundamental difference between the various types of jib luffing cranes. The jib-head sheave may either travel horizontally, on a straight line, thus creeping in between the rigging and possible aerials of the ship as it were, or it may move upwards on a curved path in the shape of a sector of a circle, or some other curve. Compared with the other types, luffing cranes with jib-head sheaves moving horizontally (level luffing cranes) possess a number of advantages that have won them preference for many purposes, although their weight usually exceeds that of the other types. For instance, there is a possibility of arranging the jib-head sheave at a much lower level, the very high position of the jib-head sheave in the normal types of cranes frequently being utterly useless. Such a permanently low position of the jib-head sheave also prevents swinging and twisting of the load in a most effective manner.

Developments in the construction of luffing cranes very soon led to the introduction of counter-weights balancing the dead weight of the jib. The jib thus remains in equilibrium whatever its position. Endeavors were also made to prevent the load from increasing when luffing the jib, because this increase in load is wholly superfluous and only involves waste of power. In principle, the solution of this problem consists in slackening the hoisting rope at exactly the same rate as that at which the jib head rises. If the load moves truly horizontally in luffing, and if the weight of the jib is balanced completely, luffing does not consume more power than is needed to overcome the forces of acceleration, the wind resistance, and the fractional resistances; to cope with these, a very small motor output is quite sufficient. All modern luffing cranes, therefore, have balanced jibs, with jib-head sheaves moving horizontally.

### Horizontal Movement of Weight

In Fig. 5 is shown a luffing crane closely resembling an ordinary slewing crane. Level motion of the load is obtained by taking the load rope over a sheave which is supported in bearings in a carriage. The latter swings on a pivot at the rear end of the crane frame and slides on a curved block rigidly connected with the jib, when luffing takes place. The curve of the block is so designed that the rope grows shorter or longer as the jib is raised or lowered. In much the same way as the sheave carriage, the counter-weight balancing the jib is also guided to move on a curved pathe. Its turning moment, referred to the jib's center of rotation, therefore, undergoes constant modification, adapting it to the altered turning



AT LEFT—FIG. 6—LUFFING CRANE OF 10 TONS CAPACITY TRAVELING ON THE PONTOON DECK. LONGEST JIB RADIUS, 57 FT. 5 IN. SHORTEST JIB RADIUS, 32 FT. 10 IN. AT RIGHT—FIG. 7—A 4.5-TON LEVEL LUFFING CRANE TRAVELING ON A LOADING BRIDGE. RADIUS REDUCIBLE FROM 55 FT. 10 IN. TO 18 FT. 1 IN.



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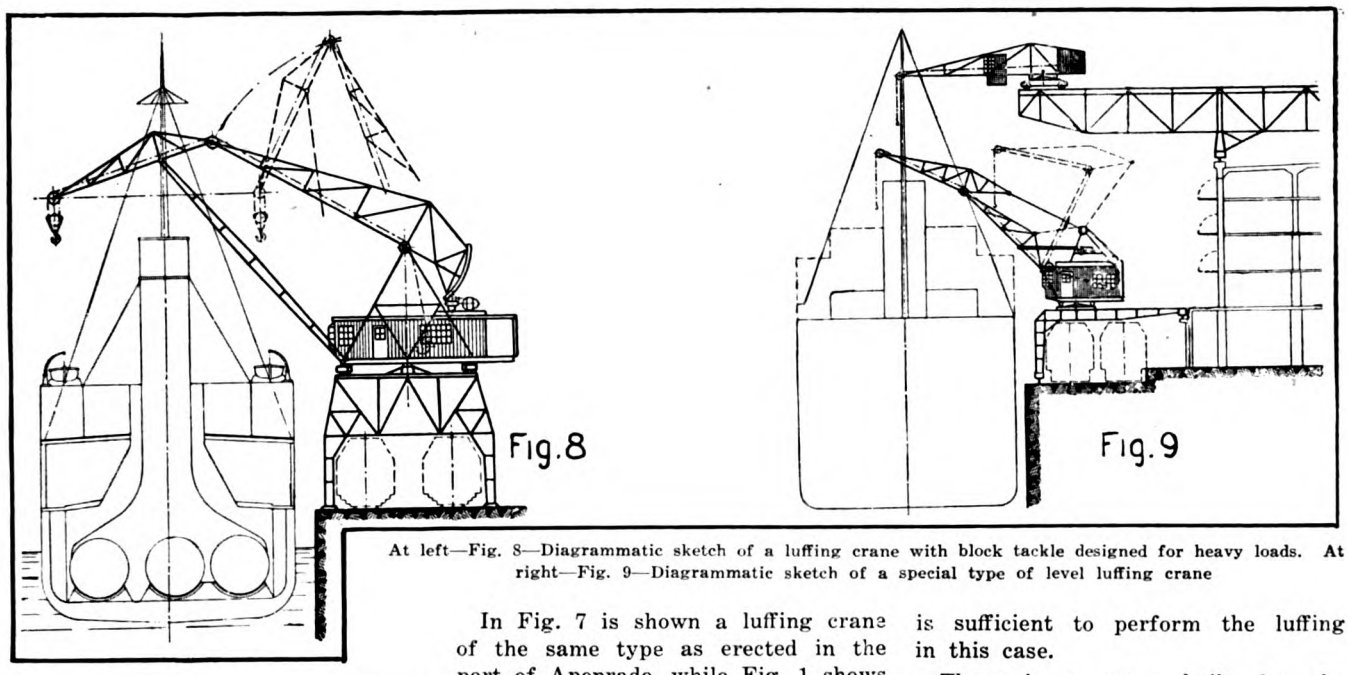


At left—Fig. 8—Diagrammatic sketch of a luffing crane with block tackle designed for heavy loads. At right—Fig. 9—Diagrammatic sketch of a special type of level luffing crane

moment of the jib at every instant. Luffing the jib is effected by means of a threaded spindle, the moving nut of which is connected with the jib by a link. The entire luffing gear is located within the engine room of the crane, except for the link rod which projects through the roof of the engine house.

The floating crane in Fig. 6 is doing service in the port of Vlaardingen-East near Rotterdam. It is chiefly used for coaling ships. On this crane the jib is luffed by means of a crank gear, the connecting rod of the crank gear being linked to the jib. Half a revolution of the crank lengthens the jib from its smallest to its largest radius, and vice versa. Even if the end cut-out switch should fail, it is quite impossible for the gear to get damaged as the jib's direction of motion will simply be reversed, if the half revolution of the crank is exceeded. The rope balancing gear for obtaining horizontal motion of the load in this case consists of reversing sheaves and a double-armed lever. The latter is supported by bearings in the frame of the crane and linked to the jib by a connecting rod. At its rear end this double-armed lever also carries the counterweight balancing the weight of the jib.

### Type Used at Stockholm

The port authorities at Krefeld were supplied with a semigantry crane having a stationary slewing crane of the same type of construction, its only difference consisting in two rack bars and pinions being employed to transmit the luffing motion to the jib. This crane is illustrated at the beginning of the article.

In Fig. 7 is shown a luffing crane of the same type as erected in the port of Apenrade, while Fig. 1 shows luffing cranes working in the port of Stockholm. In their external appearance these cranes differ widely from the ordinary types of cranes. Their jibs consist of a system of levers based on the principle of a lemniscate motion; its construction can, therefore, easily be adapted to the special requirements of any given case. Luffing is performed by means of a crank gear connected to the rear link by a connecting rod. The rear link is a double-armed lever, designed with sufficient stiffness to prevent bending. Special balancing is not necessary for the ropes; it is quite sufficient to carry the hoisting ropes over the top joints of the jib to make the load move horizontally. The ropes consequently do not have to run over sheaves, the wear on the ropes thus being reduced.

As the dead weight of the jib is balanced in all positions by a counterweight attached to the end of the rear link, quite a small motor output is sufficient to perform the luffing in this case.

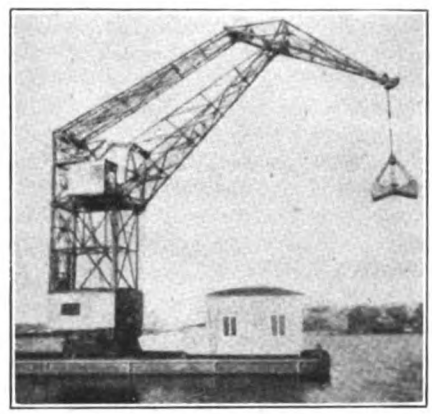

FIG. 10—A 6-TON STATIONARY LUFFING CRANE ON PONTOON. RADIUS REDUCIBLE FROM 82 FT. TO 27 FT. 11 IN.

There is a crane built for the Wanne-Herne Harbor Service Co. which is designed for transferring coal by means of tipping skips and has mangle-gear segments and pinions instead of a crank gear. One of the specific advantages of luffing cranes mentioned previously comes into particular evidence in this crane plant. If the crane were equipped with a jib of fixed radius, the whole bridge would have to be shifted for almost every skipfull of coal handled, involving the consumption of much more power for transporting the bridge than would actually be needed for transporting the useful load alone. Such uneconomical, wasteful shifting about of large dead weights can easily be reduced to a minimum by employing a luffing crane, as the whole space between the smallest and largest slewing circles of the jib can then be covered, without necessitating the least shifting of the bridge itself. In the case in point the area covered is a circular surface of 44 feet 4 inches width embracing the working field of three ships besides extending over three railway tracks.

### Level Luffing for Heavy Loads

Level luffing cranes are particularly suitable as cranes intended to deal with heavy loads and consequently necessitating the use of a special block tackle between the jib and the hook. If the distance of the jib-head sheave from the ground changes, as is the case in other types of construction, the load rope must evidently run through the multiple block carrying the hook, and through another block which is necessary between the jib head and the hoisting

(*Continued on Page* 60)



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# Up and Down the Great Lakes

**Harbor Improvements—Lake Levels—Cargo Prospects—Freight Rates—Recommended Drafts—Collingwood Shipyard Active—Freighters Sail**

HARBOR improvements being made on Lake Michigan are facilitating shipments by boat in and out of the Chicago district. A new commercial dock that has just been completed and opened for service in the Calumet area is notable among these improvements. The East Chicago Dock Terminal Co., operated by the National Terminals Corp., has put into service its dock at East Chicago, Ind., which is the first water-rail bulk freight terminal for transfer between the lake boats, the Illinois-Mississippi river barges and the railroads.

Water shipments from the east and from the Chicago district are expected to be stimulated. One of the eastern lake steel companies has adopted a regular schedule of one steel cargo weekly from Buffalo to Chicago and Milwaukee. Among the first cargoes received at the new East Chicago dock was a cargo of structural steel shipped by another steel company for the Chicago district.

The latter steel company also plans to ship mixed cargoes of steel and pig iron, the schedule to continue throughout the navigation season. A Chicago district iron and steel scrap seller shipped a cargo or rerolling rails from the East Chicago dock late in May for Port William, Ont., and it is understood other cargoes of scrap are to be shipped east from the Chicago district this season.

Development plans for the Calumet harbor by the city of Chicago are being held up by legislative tangles. The East Chicago water terminal is located at the forks of the Indiana Harbor canal, about three-quarters of a mile from Lake Michigan, on 22 feet of water. The southern branch of the canal, 12 feet deep, leads to the Calumet river a mile and one-half away, and the west branch of the canal, 22 feet deep, runs to the 1300-acre site purchased some years ago by the Jones & Laughlin Steel Corp. The National Terminals Corp. operates in Cleveland, Indianapolis and the North Pier warehouse in Chicago. Other terminals are to be established in Toledo, Duluth, Milwaukee and Buffalo, it is understood. W. W. Huggett, vice president and general manager of the corporation, states that the East Chicago dock is facilitated with cranes to unload boats at the rate of 150 to 300 tons hourly. It was stated that $750,000 already has been invested in the East Chicago terminal, and that financing has been completed for spending a total of $2,000,000.


## Great Lakes Red Book 1928 Edition Ready

*More than 1200 vessels operating on the Great Lakes and the St. Lawrence river west of Montreal, are listed in the new 1928 edition of the Great Lakes Red Book. The name of both the owning and operating companies, their addresses, the names of the captain and chief engineer of each vessel, the capacity of the bulk freighters, and a directory of shipyards and ship repair plants are given in this convenient vest-pocket size directory.*

*Publication for 26 years has proved the value of this directory and the importance of its information to those carrying on business with lake companies and vessels.*

*Its information is thoroughly accurate and up-to-date, since the vessel companies are the sources for the data.*

*The Red Book is published by* MARINE REVIEW, *Penton building, Cleveland, and retails for* $1.


* * *

Capt. B. E. Stufflebeam, who for the past 11 years has been master of the steamship ALABAMA, of the Goodrich Transit Co. lines, plying between Muskegon and Chicago, has become master of the three state ferries across the straits of Mackinac. He was appointed by the Michigan state highway commissioner. Captain Stufflebeam succeeds Capt. A. T. May, who resigned because of illness. Capt. Stufflebeam assumes personal command also of the CITY OF MACKINAC, which will be ready for service early in June.

* * *

Various freight and passenger transportation lines had their summer schedules effective for the most part early in June. The Goodrich Transit Co., Chicago, had five boats in operation the latter part of May, and has added five others. The Goodrich company has added to its facilities at Navy pier, Chicago. The company has equipped itself with a large number of trucks for unloadng fruit this year. In past years, the fruit baskets and crates had been handled entirely by hand.

* * *

A cargo of 1500 tons of English hematite or low phosphorus iron has been delivered to the Falk Corp., Milwaukee, direct by boat from the English consignor. This is the first time a cargo of pig iron has been imported for direct delivery to a Great Lakes port. In this trade, Norwegian boats carrying 1400 to 2000 gross tons of cargo are employed. They are restricted to a 14-foot draft to negotiate the Welland canal. It is uncertain at this time to what extent foreign iron can become a factor in the Great Lakes district. The ocean freight is estimated at $6 a ton.

## Deepening Channels

Major General Jadwin, chief of engineers, has recommended to the rivers and harbors committee of congress the deepening of the channels of the Great Lakes to a 24 foot available draft at an estimated cost of about $27,000,000. It is believed that congress will act favorably upon this recommendation. Such a depth of water for navigation on the Great Lakes will mean a saving between one and one-half and two million dollars a year in the extra freight that can be carried with very little additional expense.

## Contracts Awarded

Bids have been received by Commissioner Thomas F. Farrell, of the division of canals and waterways of the department of public works, state of New York at his office, 353 Broadway, Albany, N. Y. for the building of six steel flat deck scows and four steel dump scows. The flat deck scows are to be about 75 feet long and 25 feet wide. The bids on this equipment ranged from $57,000 by the Midland Barge Co., Midland, Pa. to $106,800 by the Elizabeth City Iron Works, Elizabeth City, N. C. The bids on the four steel dump scows which



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are to be about 100 feet long by 28 feet wide ranged from $82,000 by the Midland Barge Co. to $119,600 by the American Brown Boveri Electric Corp. Seven bids in all were received. The Midland Barge Co. was expected to receive the award.

Proposals were also received by Mr. Farrell for the excavation of the harbor at Erie basin Barge canal terminal, Buffalo, N. Y. to a depth of 23 feet below mean lake level. Three bids were received ranging from $334,050 by the Great Lakes Dredge & Dock Co. to $527,850 by the Dunbar & Sullivan Dredging Co. The state engineers' estimate for the work was $443,500. Award was made to the Great Lakes Dredge & Dock Co.

## April Lake Levels

The United States survey reports the monthly mean stages of the Great Lakes for the month of April as follows:

| Lakes | Feet above mean sea level |
|---|---|
| Superior | 601.81 |
| Michigan-Huron | 579.52 |
| St. Clair | 574.18 |
| Erie | 571.79 |
| Ontario | 246.42 |

Lake Superior was 0.09 foot higher than in March and it was 0.41 foot higher than the April stage of a year ago. Lakes Michigan-Huron were 0.59 foot higher than in March, were 0.72 foot higher than the April stage of a year ago, and 0.12 foot below the average April stage of the last ten years. Lake Erie was 0.29 foot higher than in March and it was 0.03 foot higher than the April stage of a year ago. Lake Ontario was 0.45 foot higher than in March, 0.45 foot higher than the April stage of a year ago, 0.54 foot above the average April stage of April, 1886.

## Collingwood Shipyard

Though not operating anywhere near full capacity the Collingwood shipyards, Ltd., Collingwood, Ont. has had some work in hand continuously. Recently completed work includes a dipper dredge 60 feet 4 inches long for the department of public works, Sandwich, Ont. For the Brown Corp., Quebec has been completed a steel twin screw diesel engine scow with propellers working in tunnels. This scow is 50 feet long by 12 feet wide and 4 feet deep and is intended for light draft service on the lakes. A steel pontoon lock gate lifter for the Welland canal has also been completed. It is 30 feet x 30 feet x 10 feet and is equipped with machinery for handling weights up to 50 tons.

Included in the work on hand is a hopper barge 187 feet in length overall; 180 feet length between perpendiculars; 32 feet in molded breadth; and 14 feet 6 inches deep. This vessel is being built for the department of railways and canals of the Canadian government and is to be used on Hudson bay. The machinery is comprised of a set of triple expansion surface condensing engines with cylinders 50½ x 26 x 44 inches and 26 inches stroke. Steam is supplied by two scotch boilers 12 feet 6 inches in diameter by 11 feet long. The hopper compartment is divided into five spaces transversely. Ten hinged doors are fitted for the discharge of the spoil and they are operated mechanically. The crew is provided with accommodations forward. The vessel is being constructed to the highest class in Lloyd's and to comply with Canadian steamship inspection. Delivery is to be made Aug. 1.

The yard has also received an order for two scotch boilers from the department of marine and fisheries to replace the boilers of the steamer, LADY LAURIER. These boilers are 13 feet in diameter by 11 feet ¾-inch long and will be shipped to Halifax.

# Heads Goodrich Lines

BY F. B. PLETCHER

FROM cabin boy to the presidency of one of the two largest steamship companies on the Great Lakes in the span of 30 years is the achievement of Capt. Edward E. Taylor, now president and general manager of the Goodrich Transit Co., Chicago. Captain Taylor has been serving as general manager of the Goodrich company since last July, and at a meeting of the board of directors on April 17 he was elected president to succeed Harry W. Thorpe, who has retired. Captain Taylor, who is widely known among Great Lakes shipping men, in taking on the duties of president will also continue as general manager.

He is typical among those who have wrested success from years of conscientious service, and through force of personality and character. He has played an important part in the development of Great Lakes shipping and transportation. In working his way through the various departments he familiarized himself with all branches of service in the company he now heads. Few executives have assumed office with a broader background of a company's activities. Captain Taylor is a firm believer in the philosophy that mastery of the work immediately at hand is the best preparation for a higher post of responsibility.

His rugged and kindly personality and long experience have won for him the loyalty of the personnel he has been called upon to lead. Born 50 years ago in Noblesville, Ind., Captain Taylor entered the service of the old Goodrich company at the age of 18 as a cabin watch. He advanced through various departments, becoming familiar with the work at each step, and finally became a ship master. At that time he had the distinction of being the youngest captain on the Great Lakes.

In this capacity he became widely known among shipping men, and he later served as commodore of the Goodrich fleet for about 15 years.

CAPT. EDWARD E. TAYLOR

With the exception of a few years during and following the World war, Captain Taylor has been continuously with the Goodrich company. In 1914 he left that company to become ship master with the Chicago, Duluth & Georgian Bay Co. During the war he was in charge of the piloting of all ships constructed on the Great Lakes for the United States shipping



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board from the lake shipyards to the Atlantic seaboard.

In 1921, Captain Taylor became general superintendent of the Graham & Morton lines, in which capacity he remained until October, 1924, when the Graham & Morton lines was absorbed by the Goodrich Transit Co. He then was made assistant general manager of the Goodrich company, filling this position until his appointment as general manager last summer. Captain Taylor plans to continue in general the past policies of the Goodrich company.

Maj. Ferry F. Heath, of Grand Rapids, Mich., also has been elected assistant to the president. Other officers of the company elected by the board are William Alden Smith, Grand Rapids, Mich., chairman of the board; Charles C. West, Manitowoc, Wis., vice president; L. E. Geer, Chicago, vice president; J. Stanley Morton, Benton Harbor, vice president, and W. J. Thorp, Chicago, secretary and treasurer.

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On May 17, the Lake Carriers association recommended 19 feet 6 inches draft for vessels on Lake Erie at Fairport, Ashtabula, Conneaut, O. and Buffalo except at Donner Steel and Black Rock channel. For the former 19 feet was recommended.

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## Cargo Prospects 1928

It is generally expected among shippers on the Great Lakes that the bulk cargo will be at least equal to and perhaps greater than it was last year. Under the circumstances, with operations beginning a month later, more tonnage will be occupied from June 1 on than during the season of 1927. Contracts for the movement of ore were placed on the basis of 70 cents from ports at the head of Lake Superior which is the same rate as prevailed in 1927. This year during the first fourteen days of May the docks at Lake Erie ports loaded only 6377 cars of ore while for the same period last year these docks forwarded 29,266 cars. A steady increase of receipts will make the unloading plants at Lake Erie ports fairly busy by June 1.

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## Late Ice Conditions

As late as May 12 heavy drift ice was recorded some distance from Copper harbor also off Caribou island, both in Lake Superior. Captains of several ships reported finding large quantities of drift ice and slush ice which under certain conditions were dangerous to navigation. However all vessels at this time got through without difficulty. Around the same time there was still some ice at Buffalo but not of such a nature as to cause any serious difficulties. The passenger vessels CITY OF BUFFALO and CITY OF ERIE of the Cleveland & Buffalo Transit Co. were able to dock without trouble and both vessels entered on their regular schedule between the two cities. The actual service was inaugurated May 10 when the steamer CITY OF BUFFALO cleared from the East Ninth street pier, Cleveland, for Buffalo. The steamer SEEANDBEE is to be placed in service on May 31.

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## Launch Five Craft

Two steel scows, a large steel tug and two other craft were launched at the Manitowoc Shipbuilding Corp., Manitowoc, Wis. on April 26. All of these boats were built for the Great Lakes Dredge & Dock Co., Chicago.

The tugboat was christened, JOHN F. CUSHING and is 125 feet in length, 27 feet beam and has a depth of 16 feet 2 inches. It is equipped with a Busch Sulzer diesel engine of 1000 horsepower. The CUSHING is said to be the largest tug ever constructed for Great Lakes service.

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## Lake Freighters Sail

The season of 1928 is in full swing on the Great Lakes, ore, coal and grain all being under way. So far Canadian vessels are taking about all the grain that is being sent forward from Fort William and Fort Arthur. About May 22 the ore and coal movement was light as compared with a year ago. Vessels under contract are taking care of the demands about as fast as they can be handled by the shippers. It is believed that all of the bulk freighters will not be in commission by June 1. During the week ending May 19 elevators at Buffalo unloaded from lake vessels 14,615,000 bushels and at the same time loaded 2272 cars and 1,259,000 bushels into barge canal fleets for the eastern seaboard.

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## Freight Rates 1928

Charters for the movement of ore and coal for the season of 1928 were begun on May 14 at the same rates as in 1927. Ore shippers in Cleveland have announced contracts with vessel men to take cargoes through the season at 70 cents from the ports at Lake Superior to Lake Erie and Lake Michigan ports, 63 cents from Marquette and 52½ cents from Escanaba to ports on Lake Erie and 42 cents from Escanaba to Lake Michigan ports. Coal contracts were made at 40 cents to ports at the head of Lake Superior and 50 cents to Milwaukee. Allowance is made for dispatch at fast working docks. This amonts to 2½ to 5 cents a ton. It was reported in the middle of May that fuel prices are the same as last year.

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## Captain Cronkhite Dies

For thirty years Capt. Henry T. Cronkhite who died on April 24 at Buffalo at the age of 73 had sailed steamers of the Anchor line out of that port, in passenger and package freight service to Cleveland, Detroit and other western ports. He was very well known among shipping men on the Great Lakes. He is survived by one son and five daughters.

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## Passenger Lines Start

Regular daily service was opened by the Detroit & Cleveland Navigation Co. between Detroit and Buffalo on May 15. Tuesdays, Thursdays and Saturdays there will be a daylight service from Cleveland to Detroit, steamers leaving Cleveland at 11:00 a. m. and arriving in Detroit at 5:45 p. m. This service in both directions is in addition to the usual daily overnight service.

Cleveland has been selected as the terminus this season for the fast express tourists' steamers, EASTERN STATES and WESTERN STATES. These vessels will operate between Cleveland, Detroit and Chicago via Mackinac island and St. Ignace. Heretofore the eastern terminal of the Chicago division has been Detroit. Two sailings will be made weekly from Cleveland and three sailings weekly from Detroit to Chicago.

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## Chief Engineer Killed

The chief engineer, Lief Urdal, of the steamer T. W. ROBINSON of the Bradley Transportation Co. fleet, was instantly killed on May 17 while on board his ship. The cause of his death was said to have been due to the bursting of the low pressure turbine casing. The vessel was only slightly damaged. Mr. Urdal lived in Lakewood, O. He had sailed the Great Lakes for 14 years and was only 30 years of age. He is survived by his parents and two sisters.

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Announcement has been made that B. Q. Torbron has been appointed general coal and ore agent for the New York Central Railroad Co. with headquarters at Cleveland in place of C. A. Washer transferred. J. R. O'Malia will be assistant general coal and ore agent.



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# Equipment Used Afloat, Ashore

## Unique Pressure Valve—Adjustable Die Stock—Wood or Metal Sander—Electric Food Mixer—Oval Tube Radiator—Purifier—Portable Meter

AN ENTIRELY new type of valve for high pressures and temperatures has been developed by the Wellman-Seaver-Morgan Co., Cleveland. The valve seats are an integral part of a slightly tapered removable valve-cage. The cage itself has an external take-up adjustment to compensate for the expansion or contraction and prevent leakage between the walls of the cage and the main valve body. Another unique feature is that the valve cage may be utilized to shut off the flow through the valve while repairs or adjustments are being made, entirely eliminating the necessity of taking the entire valve body out of the line.

The valve cage has guides corresponding with slots in the wedge-type gate, which control the path of travel of the gate and prevent rubbing of the surfaces of the gate and seat.

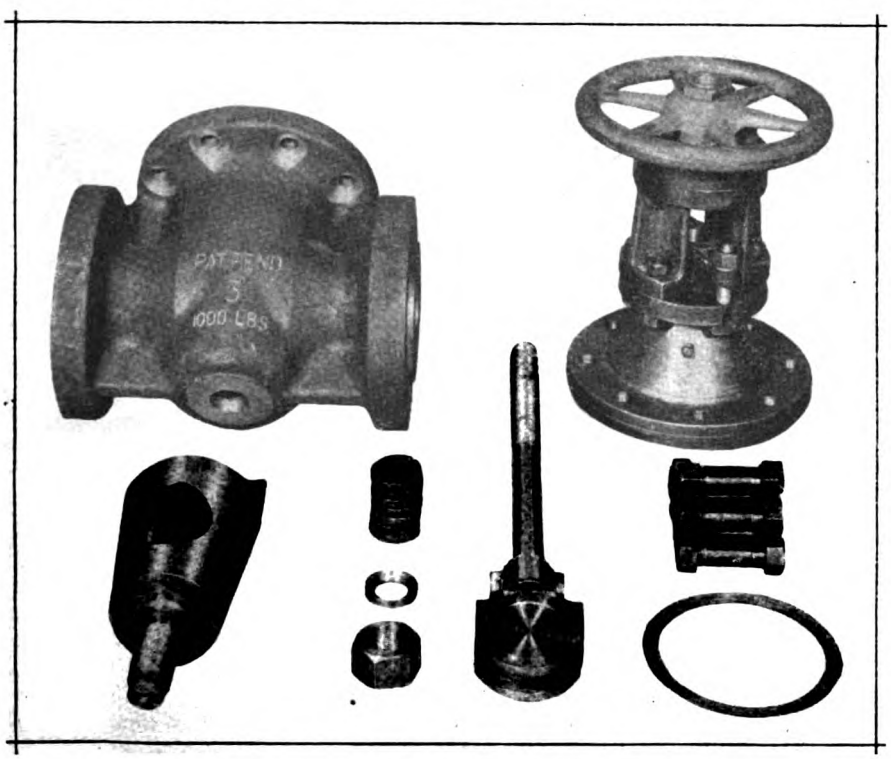
The interior of the valve cage is circular in cross-section permitting it to be rotated into position or given a quarter turn to shut off the flow during repairs. The valve seats are flat permitting the closing of the valve under high pressures, at the same time allowing the valve to be easily opened. The gate faces are removable and may be replaced when worn, or adjusted when desired.

The whole arrangement is such that the valve surfaces are released from the seat at the slightest movement of the valve stem on account of the wedge shape with its center guides which practically eliminates any sliding action. This avoids both wear and the wedging of the valve faces against the valve seats which would make difficult the opening of the valve.

The valve conforms to dimensions which have been approved by the American Society of Mechanical Engineers standards committee for steel pipe flanges and flanged fittings, while the materials conform to the requirements of the American Society for Testing Materials. The one-piece valve bodies and the bonnets are of forged steel; the cages, gates, gate bolts, stems, bushings, and gate seats are of stainless steel.

The valves are made in both the gate and globe types to meet the most exacting requirements of the highest temperatures and pressures used in modern steam plants, oil refineries, pipe lines, and in hydraulic, air and gas lines in the various process industries. They are of the rising stem type and have a straight-way flow, there being no angles at the valve seats; the packing boxes are elevated and have long depth of packing with a large air chamber below the packing. The body and cover flanges have tongue and groove joints for soft steel corrugated gaskets.

The globe type has a forged steel body and bonnet with either inside screw, or outside screw and yoke; the removable cage construction allows full capacity openings through the valve.




MISCELLANEOUS PARTS OF NEW TYPE VALVE WHICH PERMITS MAKING REPAIRS WITHOUT REMOVING VALVE BODY FROM THE LINE

## Pipe Threading Stock Adjustable for Size

Piping is an essential feature on every ship and consequently hand pipe cutting and threading tools are a necessary part of the machine shop equipment carried on board. A new self-contained and adjustable 1 to 2-inch die stock to facilitate the cutting of threads on pipes has been develped by the Borden Co., Warren, O., a concern specializing in the manufacture of pipe working tools. This new stock, while having all the advantages of former equipment of this sort, is lighter in weight, easier working and simpler in construction.

With this new die stock, threads can be cut on 1, 1¼, 1½ and 2-inch pipe without changing dies by a quick alternate in setting. Under or over standard thread without effecting thread length is possible. The stock will cut threads on any pipe and no special die is required for brass pipe threading. The cutter or die chaser is made of high quality alloy steel, specially treated in regard to hardening and tempering, insuring a long threading life. The die head and threaded barrel are seperate, necessitating the purchase of only one part in case of repair. As the dies are always in the tool and ready for use they cannot be lost or mislaid.

The pipe gripping device has been redesigned to allow the most accurate means yet known for centering the pipe. This is accomplished by two knurled screws which are quickly set, and further by a thumb screw to be tightened after the stock has been placed on the pipe. When this



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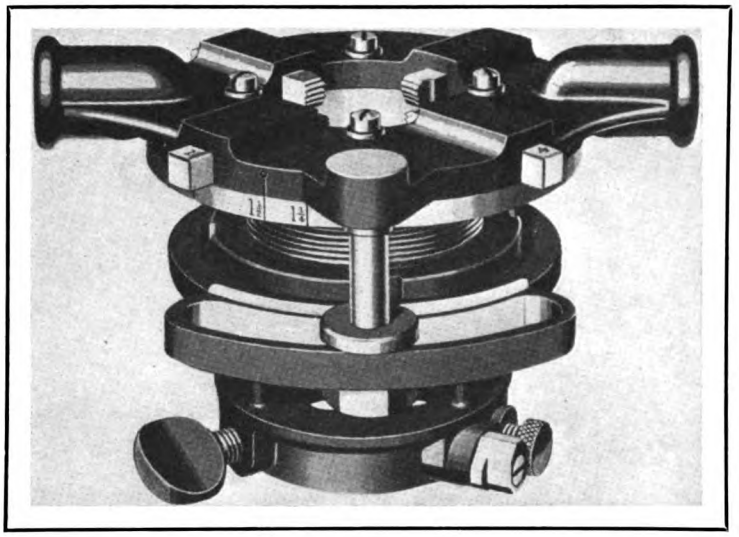


PIPE THREADING STOCK—ADJUSTABLE FROM 1 TO 2-INCH PIPE

new workholder is set to size nothing but a straight thread can be cut, but it may be quickly and easily adjusted to cut crooked or drip threads if desired. It will also grip any size couplings for threading short nipples.

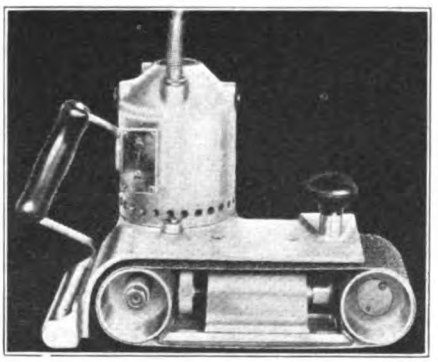
Because of the fact that the parts are interchangeable there is no possibility of ordering or buying the wrong part; in fact, repair parts are guarenteed to fit. Loose bushings have been eliminated in this new stock. Material has been selected from the standpoint of particular fitness to perform its work most efficiently and exactly.

It is said that by using this new stock the operation of cutting a thread is completed in the time required for getting ready for the work when the old type, with loose dies and bushings, is used. Instead of being put to the trouble of hunting for dies and bushings that have become lost or mislaid, and of wasting more time in changing dies when a different size thread is desired, it is necessary merely to shift the dial plate to the correct graduation mark and cut the thread.

## Large Sander Finishes Wood or Metal

All ships have larger or smaller areas of wooden decks. On passenger vessels wooden decks are likely to be extensive. In the building and also in the operation of the ship, some mechanical means for making such decks smooth and for resurfacing them is necessary to save time and labor. A sanding machine particularly suitable for this purpose has recently been developed by the Porter-Cable Machine Co., Syracuse, N. Y. This is a heavy duty, hand belt surfacing machine for wood or metal as shown in the accompanying illustration.

It was developed because the smaller model was not a production machine and because the trade demanded a heavy-duty type. It is equipped with a new type, compound-wound air-



NEW HAND BELT SURFACING MACHINE

cooled motor that shows little temperature rise after continuous use. The 1 horsepower is abundant to drive the 4-inch belt at the rapid rate of 2000 feet per minute. The motor is of the universal type and may be operated on direct current, or alternating current from 25 to 60 cycles. Power is transmitted to the rear pulley by a worm and gear which are totally enclosed. Belts can be changed in a fraction of a minute and are furnished for cutting wood or metal. They come all made up ready to be slipped over the pulleys. Tension is automatically maintained correct. It weighs 22 pounds.

## Electric Food Mixer for Galley Use

In order that a ship's galley equipment may be complete, some means for rapid food mixing should be included. Especially is this true of passenger vessels. A mixer adapted for use in the galley on board ship as shown in the accompanying illustration has been developed by the Reynolds Electric Co., Chicago, Ill. This machine is equipped with a 12-quart bowl, designed to set on a table or bench. It stands 30 inches high and occupies a space 12 inches square. There are two speeds: the slow speed for a stirring action, the faster speed for a whipping action. It will mix salads and jellies, mash potatoes and vegetables, make salid dressing, whip eggs or cream, or perform any operation requiring a stirring or beating action. This new mixer is simple and rugged in design. The 12-quart bowl is 10½ inches in diameter and 9½ inches high. Attachments are provided for a great variety of purposes, including meat and food grinder, crumber, ice cream freezer, coffee mill and many others which are used in the routine of the ship's galley. The mixer is powered by a reliable 1/6 horsepower motor which may be connected to a light socket or to any other outlet.

FOOD MIXER

## Convection Increased by Oval Tube Radiation

A new radiator has recently been developed, the unique design and dimensions of which appear to make it of particular interest to ship builders.

This radiator is known as Shaw-Perkins high convection radiator and represents a new model in the standard oval tube radiation such as the company has manufactured for some years for various heat exchanging purposes.

The new model radiator is made throughout of Armco ingot iron. The radiator utilizes sound principles of pipe coil design. It is light in weight, compact, sanitary and heats or cools quickly. The standard oval tube, which is incorporated in this radiator, is arranged horizontally in two vertical rows and connected at both ends into vertical headers. All joints



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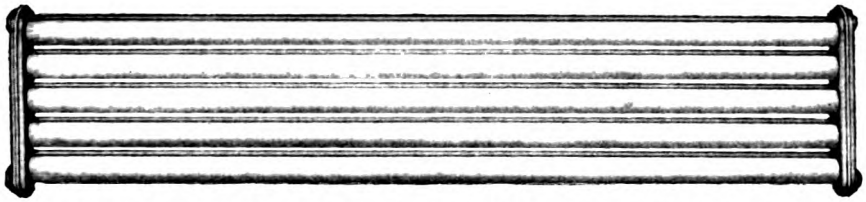
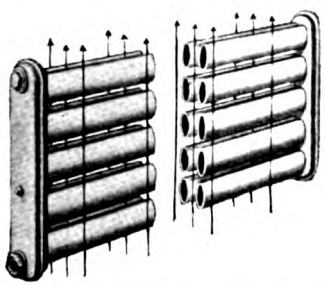


ELEVATION OF STANDARD TYPE SHAW-PERKINS HIGH CONVECTION RADIATOR

and connections are welded, making the radiator a jointless, one-piece unit.

The radiators are all prime heating surface and the ingenious arrangement of the oval tubes allows the air to pass freely over the tubes unimpeded by fins, plates or top and bottom hub connections, consequently the radiator has a high heat emission by convection.

The unusual dimensions in which the radiators are furnished, being made in low, narrow, one-piece units



SECTION OF OVAL PIPE RADIATOR

as long as 14 feet, combined with the high convection feature which induces rapid and uniform temperature distribution throughout the heated space, would seem to make the radiator especially well adapted to boat and ship heating surface requirements.

The radiators are furnished in a substantial dull gray lacquer finish, and legs or brackets may be obtained for installation of the radiators upon the floor or for their suspension upon side walls.

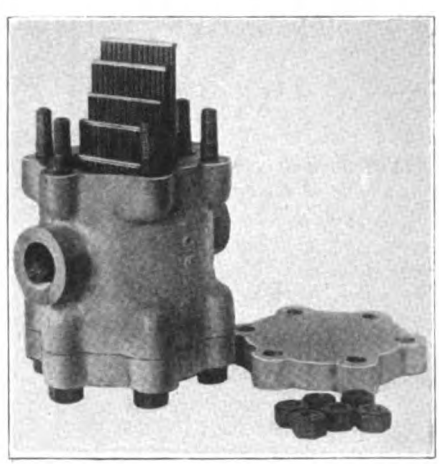
These radiators may also be supplied in tube and header arrangements different than that shown in accompanying illustrations, making the radiators suitable for horizontal installation as well as vertical installation, which is sometimes desirable.

An attractive new catalog has just been issued by the manufacturer describing these radiators. The catalog also contains interesting new technical information relating to heating surface, and a copy may be obtained by addressing the manufacturer, the Shaw-Perkins Mfg. Co., Pittsburgh, Pa.

## Removes Moisture from Air and Steam

The Andrews-Bradshaw division of the Blaw-Knox Co., Pittsburgh, recently has introduced a small purifier for air, steam or gas lines up to 3 inches in diameter. The unit consists of a casting, which is in effect an enlargement of the pipe in which it is placed. Five rows of gutter shaped baffles, which are made and staggered accurately, are placed in the enlarged section. When in operation, these baffles break up the air or steam into narrow ribbons approximately 7 inches in height and 1/20-inch in width. These ribbons of air, steam or gas as the case may be, are made to cover an exceedingly circuitous path through the baffles. The baffles remove the moisture or dirt in the vapor passing through the purifier, thus producing clean, dry air or steam. The moisture is drained away from the purifying unit by a weight operated steam trap.

In saturated steam lines, it is claimed the unit removes all moisture, delivering standard specification steam free from all solids, both soluble and insoluble. Air for several pneumatic tools may be cleaned by one unit placed in the line near the tools. A



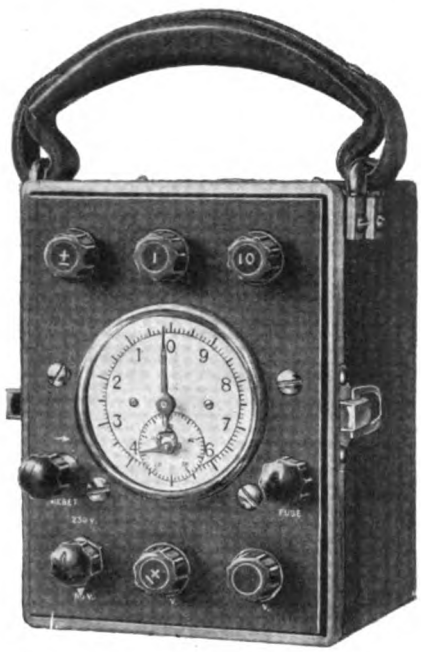
UNIT PURIFIER, SHOWING BAFFLES

view of the unit with the head removed and the baffles elevated, is shown in the accompanying illustration. This type of unit purifier it seems will serve to reduce expense by removing dirt and grit from operating equipment.

## New Portable Standard Watthour Meter

A new type OB portable standard watthour meter, has recently been perfected by the Westinghouse Electric & Mfg. Co.

The new meter has several advantages, the outstanding one being the compensation for temperature errors at both unity power factor and low power factor. This compensation is inherently permanent for both the electromagnets and the permanent magnets and does not depend on the



PORTABLE WATTHOUR METER

movement of mechanical parts with the variation in temperature.

Superior accuracy is obtained along with a decrease in size and weight. These latter features are important considerations in a portable meter, especially where a great many meters are to be tested at widely separated points. The micrometer adjustments have been simplified and the electromagnets are of the one piece OB type. A zero reset is provided by which both pointers can be set on zero. Potential settings are changed by means of a small switch, and three current binding posts are used, so that the meter may be connected for either 1 or 10 ampere capacity.

## Munson Made President

Announcement has been made that John G. Munson, vice president and general manager of the Bradley Transportation Co. and the Michigan Limestone & Chemical Co. has been elected president of both companies succeeding late Carl D. Bradley.



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# Personal Sketches of Marine Men

## Capt. Andrew Furuseth, President, International Seamen's Union

By Lynne M. Lamm

*TIME mellows the bitterness engendered in the clash of opposing factions. Even his opponents now concede the justice of many features of the Seaman's Act of which he was part author.*

*HIS sincerity, intelligence and thorough practical understanding of seamanship are recognized by steamship owners and operators. But many of his theories have been attacked as visionary and unworkable.*

*THERE is something of the crusader about him. His fighting nature has never been tamed, and his devotion to the betterment of seamen has been the constant goal of his long and active life.*

ANDREW FURUSETH, more than any other man in the world is responsible for the vastly better working conditions of men who go down to the sea in ships," said W. W. Campbell, president of the University of California recently, paying a tribute to Captain Furuseth, veteran president of the International Seamen's union, and noted collaborator with the late Senator Robert M. LaFollette of the seamans law in 1915. President Campbell in paying his tribute to Furuseth told of labor conditions of seamen he encountered on a trip around the world 30 years ago and contrasted them with the improved state of affairs he noticed on a similar trip five years ago.

Captain Furuseth, who is 74 years old, was born in Norway, March 12, 1854. His father was Andreas Nielsen Furuseth and his mother Martha Jensdatter. The captain attended the common schools of his native land until he was 19 years old at which time he went to sea. He first came to the United States in 1880 and is a naturalized citizen. He has been president of the International union for 20 years and is also official secretary of the Sailors' union of the Pacific. He resides in San Francisco and is recognized throughout the country as an authority on the American merchant marine.

While Furuseth admits that "hell ships" no longer sail the main he feels that much can still be done to improve the lot of sailors. The passing of many of the terrible evils of life at sea has come within the lifetime of the "old man of the sea." He can recall the days when sailors were flogged to death or skinned alive, when nearly all ships carried a "shanghaied" crew, when seamen who left their vessel before the cruise was up could be thrown into prison, and when boarding house "crimps" trafficked in sailors as old Virginia planters bartered in slaves.

His labors to "deliver the seamen from bondage" are acknowledged in the affectionate title, "the Abraham Lincoln of the sea." Captain Furuseth has recently gone to Washington to defend certain features of the existing navigation laws in connection with the proposed codification suggested by the United States shipping board. Some of the amendments, Furuseth claims, threaten the men who man our ships with "involuntary servitude."

Captain Furuseth admits that, "taken alone, none of the suggested amendments of or by themselves would restore compulsory labor on a vessel in any harbor of the United States, but taken together, they would if enacted into law, bring about an industrial condition that would be equivalent to involuntary servitude."

"The suggested amendments," says Furuseth, "are based upon the assumption that neither skill nor experience is needed in the management and navigation of ships, and therefore ships may safely be sent to sea without seamen and manned by crews of casual laborers picked up on the streets. Having reduced the status of steamship to that of unskilled laborer the proposed amendments would reduce the unskilled laborer himself below the status of ordinary humanity."

The captain is one of the most picturesque persons to be seen on the streets of the nation's capital, when he is there taking up some matters for his union in the departments or appearing before congressional committees. He can always be recognized by his wide bottomed pants and the sailor's gait, which he has never discarded. National legislators who have studied shipping conditions and have therefore come in touch with him are fond of the "old sea dog," and he has a great friend in young Senator "Bob" LaFollette. Senator Henrick Shipstead, of Minnesota, a fellow Scandinavian, says that Furuseth is "the



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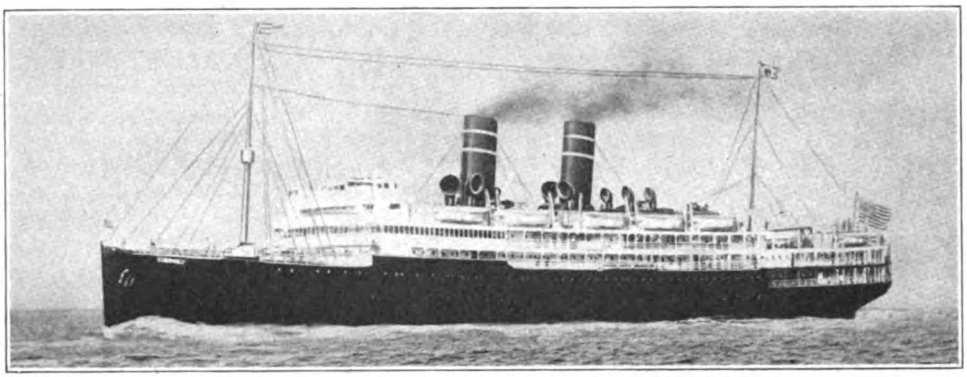

*The Palatial Ward Line Steamship "SIBONEY" of the New York and Cuba Mail Steamship Co.*

# The "SIBONEY"

## is *also* lubricated with

# TEXACO MARINE TURBINE OIL H

The S. S. SIBONEY is owned and operated by the New York and Cuba Mail Steamship Co. (Ward Line). She is a sister ship to the S. S. ORIZABA.

Both ships have seen two years in the U. S. Army transport service. Both have seen eight years service as a passenger ship between New York and Havana, Cuba.

This is a hard run, made weekly, under every conceivable climatic and operating condition.

TEXACO MARINE TURBINE OIL H was installed on the S. S. SIBONEY (as it was on the ORIZABA) *10 years ago.* Since that time, (with the exception of make-up) the original oil has never been changed! *Not once* during 700,000 miles of travel!

TEXACO MARINE TURBINE OILS H & M are known for their durability under the most intensive operating conditions.

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smartest man in the United States."

"Work is worship—to bear is to pray"—said the captain at a Labor day address last year. This is from the man of whom it is said that all his life he has been father and mother, priest and prophet and saint to the homeless wanderers of the seas, who has spent himself that they might live better and fought that they might live more freely. In this same talk Furuseth said that 'it matters not if the labor be the writing of a thesis or the digging of a ditch, it is the use of the same divine faculty of labor—to create—and upon its proper and free use depends the life of individuals, nations and races. Those who have been untrue have shared the fate of the tree without fruit. They have passed away because they have encumbered the earth. Those who have been true have lived, and, according to history and the religious belief, they are to live."

Captain "Andy," who as before stated, is now in his seventy-fourth year, is as full of fight as any other seafaring man of 20 years his junior. He is the wonder of those with whom he comes into contact. He puts into action the result of the experiences which he had during his many years of seafaring life, from which he knows the many trials and tribulations of the seamen. It is a coincidence that in fighting the shipping board changes in the laws he is taking up the cudgels against T. V. O'Connor, chairman of the shipping board and a longshoreman by trade, former head of the dockers' union.

# Superheat Used on British Freighter

ON MARCH 29, the handsomely modeled single screw steamer BASIL, built by R. & W. Hawthorn, Leslie & Co. Ltd., Hebburn-on-Tyne, to the order of the Booth Steamship Co. Ltd., Liverpool, ran her trails off the mouth of the River Tyne in very boisterous weather, attaining a highly satisfactory speed. The vessel has been built to Lloyd's 100 A1 class of shelter deck type, with two complete tween decks and topgallant forecastle. Water ballast is carried in the cellular double bottom all fore and aft, and also in the tanks.

The cargo handling appliances consist of 17 steel tubular derricks, mounted on masts and derrick posts, with 13 steam winches, 3 pairs being coupled together for working heavy lifts. The foremast is capable of withstanding a lift of 50 tons. All of the gear is designed for the rapid handling of cargo.

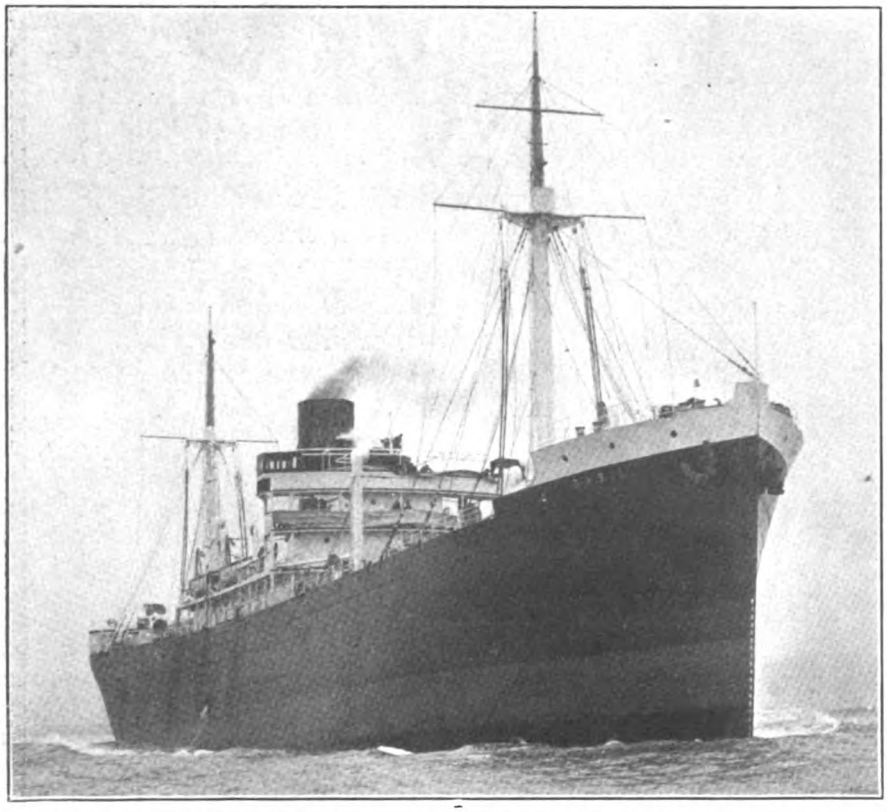
The chart and wheel houses are situated on the navigating bridge. Steel house for captain's rooms is on lower bridge and officers are berthed in a steel house on fore end of boat deck. Engineers, doctor, stewards, etc. are accommodated in long midship deck house on shelter deck, where there is also provision for bakery, pantry, galley, and mails. Sailors and firemen are berthed in the upper tween decks aft and also in steel house under docking bridge.

The propelling machinery was constructed by the shipbuilder at his St. Peter's works, and consists of a set of single screw engines of the triple expansion direct acting surface condensing type. Steam is supplied by three cylindrical boilers working at 215 pounds pressure with Howden's system of forced draft. Superheaters of the Schmidt type are fitted.

An independent circulating pump is fitted together with main feed pumps, ballast and general service pumps, harbor feed and fresh water pumps, also feed heaters, filters and evaporator. A self tipping ash hoist is fitted in the stokehold.

The shipowner was represented at the trials by Capt. J. W. Harris, R.N.R.; C.F.A. Fyfe; E. A. Sanderson, and Capt. R. H. Buck, R.N.R.

The BASIL is the first of two sister vessels, the second vessel the S. S. BONIFACE, should be ready for delivery as this is written.



SINGLE SCREW CARGO STEAMER BASIL ON TRIALS MARCH 29 OFF RIVER TYNE

## Railway Drydock

Alex McKay Co. Ltd., Quebec, Canada, has engaged the Crandall Engineering Co., Boston, to design and construct a railway dry dock with a lifting capacity of 1800 tons. The cradle is to measure 250 feet over the keel blocks and 68 feet in width and is to have a depth of water over the keel blocks of 11 feet forward and 17 feet aft at neap high tides. It is to be equipped with 32 sliding bilge blocks of the releasing type, operated by chains and hand winches located on the docking platforms.

The hauling arrangement is to consist of steel chains operated by a steam hauling machine of sufficient power to dry dock a vessel in about 30 minutes.

This dry dock is to be located on the west end of Louise embankment at Quebec adjacent to the present shop. Construction has already started and the dock is expected to be completed for operation by November.



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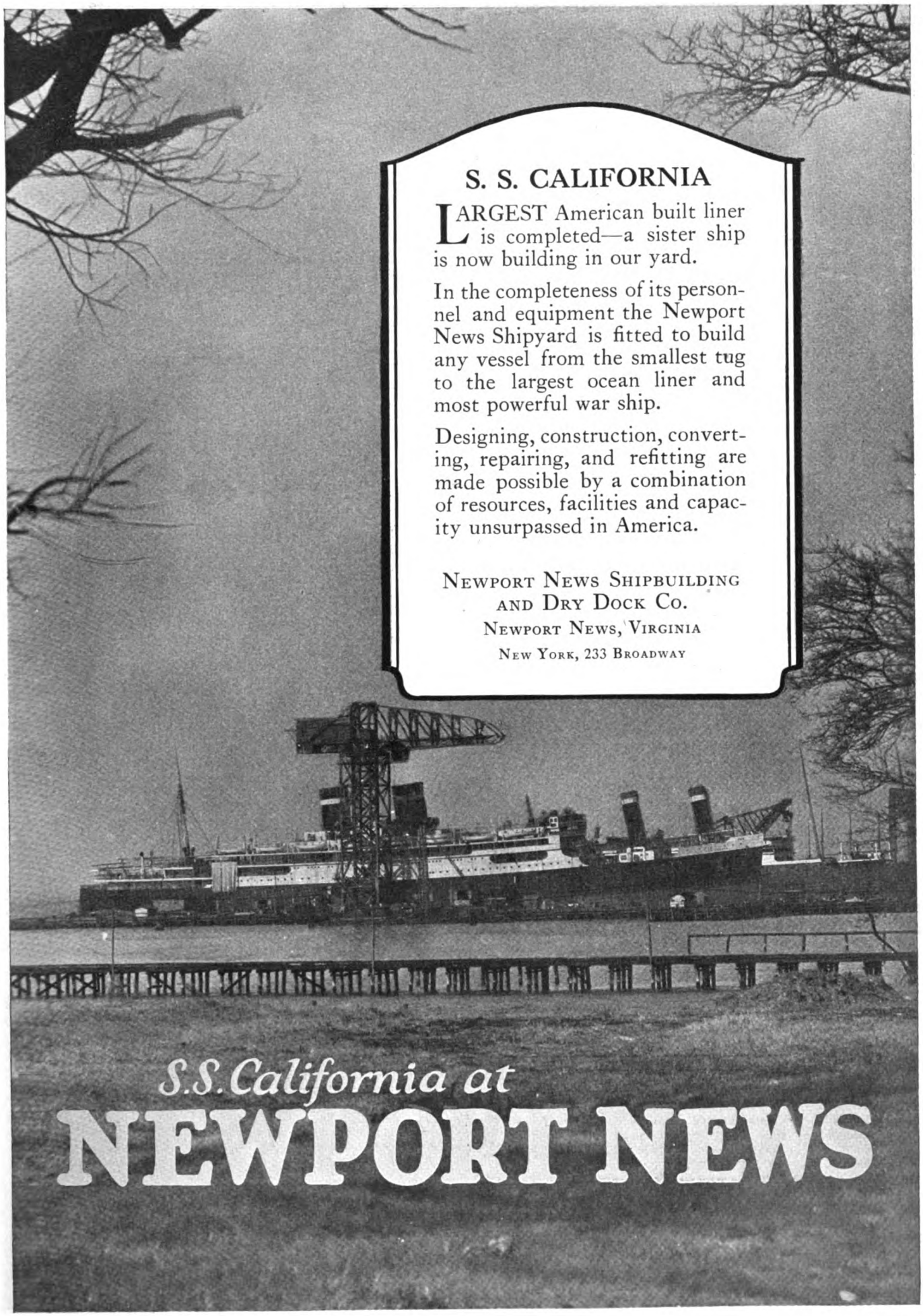
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## *Text (Continued) of*

# Jones-White Merchant Marine Bill

(*Continued from Page* 21)

of the maximum compensation authorized in subsection (a), but the compensation per nautical mile authorized by this subsection shall not be greater than an amount which bears the same ratio to $12 as the speed which such vessel is capable of maintaining at sea in ordinary weather bears to 24 knots.

(c) If the postmaster general is of opinion that to expedite and maintain satisfactory service under a contract made under this title, airplanes or airships are required to be used in conjunction with vessels, he may allow additional compensation, in amounts to be determined by him, on account of the use of such airplanes or airships. Such airplanes or airships shall be American-built and owned, officered and manned by citizens of the United States.

(d) The postmaster general shall determine the number of nautical miles by the shortest practicable route between the ports involved and payments under any contract made under this title shall be made for such number of miles on each outward voyage regardless of the actual mileage traveled.

**Violation of Contracts**

Sec. 410. In the case of failure of a vessel from any cause to perform any regular voyage required by a contract made under this title, a pro rata deduction shall be made from the contract price on account of such omitted voyage; and suitable deductions, to be determined by the postmaster general, may be made from the compensation payable under the contract for delays, failures to properly safeguard the mails, or other irregularities in the performance of the contract. Deductions so determined upon shall be deducted by the postmaster general from the payments otherwise due and payable under the terms of the contract. The postmaster general may, in case of emergency, permit the substitution for a particular voyage of a vessel not within the provisions of the contract, even though not conforming to the requirements of section 405.

**Passengers, Freight and Express**

Sec. 411. Any vessel operating under a contract made under this title may carry passengers and their baggage, and freight and express, and may do all ordinary business done by similar vessels.

Sec. 412. Naval officers of the United States on the active list may volunteer for service on any vessel employed in mail service under a contract made under the provisions of this title, and when accepted by the owner or master thereof may be assigned to such duty by the secretary of the navy. While in such employment such officers shall receive from the government half pay, exclusive of allowances, and such other compensation from the owner or master as may be agreed upon by the parties; but such officers while in such employment shall be required to perform only such duties as appertain to the merchant marine.

**Mail Messengers**

Sec. 413. Upon each vessel employed in ocean mail service under a contract made under this title, the postmaster general shall be entitled to have transported such mail messengers as he may require, for whom shall be provided subsistence, suitable staterooms and working quarters, all free of charge.

**Amendments and Repeals**

Sec. 414. (a) Section 24 of the merchant marine act, 1920 [U. S. C., title 46, § 880], is amended to read as follows:

"Sec. 24. That all mails of the United States shipped or carried on vessels shall, if practicable, be shipped or carried on American-built vessels documented under the laws of the United States. No contract hereafter made with the postmaster general for carrying mails on vessels so built and documented shall be assigned or sublet, and no mails covered by such contract shall be carried on any vessel not so built and documented. No money shall be paid out of the treasury of the United States on or in relation to any such contract for carrying mails on vessels so built and documented when such contract has been assigned or sublet or when mails covered by such contract are in violation of the terms thereof carried on any vessel not so built and documented. This section shall not be applicable in the case of contracts made under Title IV of the merchant marine act, 1928."

(b) Section 7 of the merchant marine act, 1920 [U. S. C., title 46, § 866], is amended by striking out so much thereof as reads as follows: "The postmaster general is authorized, notwithstanding the act entitled 'An act to provide for ocean mail service between the United States and foreign ports, and to promote commerce,' approved March 3, 1891, to contract for the carrying of mails over such lines at such price as may be agreed upon by the board and the postmaster general."

(c) The act entitled "An act to provide for ocean mail service between the United States and foreign ports, and to promote commerce," approved March 3, 1891 [U. S. C., title 39, §§ 657-665], is repealed.

(d) So much of the act entitled "An act making appropriations for the service of the Post Office Department for the fiscal year ending June 30, 1918, and for other purposes," approved March 3, 1917, as provides for contracts for the carrying of mails between the United States and Great Britain [U. S. C., title 39, § 666], is repealed.

(e) Subdivision (b) of section 4009 of the revised statutes, as amended, [44 statutes at large, pt. 2, 900], is amended to read as follows:

"(b) The provisions of subdivision (a) of this section shall not limit the compensation for transportation of mail which the postmaster general may pay under contracts entered into in accordance with the provisions of section 4007 of the revised statutes [U. S. C., title 39, § 652], section 24 of the merchant marine act, 1920 [U. S. C., title 46, § 880], or Title IV of the merchant marine act, 1928."

(f) Any contract made prior to the enactment of this act shall remain in force and effect in the same manner and to the same extent as though this act had not been enacted. Any such contract which expires on June 30, 1928, may be extended for a period of not more than one year from such date.

## TITLE V

## Insurance Fund

Sec. 501. Section 10 of the merchant marine act, 1920 [U. S. C., title 46, § 869], is amended to read as follows:

"Sec. 10. That the board may create out of insurance premiums, and revenue from operations and sales, and maintain and administer separate insurance funds which it may use to insure in whole or in part against all hazards commonly covered by insurance policies in such case, any legal or equitable interest of the United States (1) in any vessel constructed or in process of construction; and (2) in any plants or property in the possession or under the authority of the board. The United States shall be held to have such an interest in any vessel toward the construction, reconditioning, remodeling, improving, or equipping of which a loan has been made under the authority of this act, in any vessel upon which it holds a mortgage or lien of any character, or in any vessel which is obligated by contract with the owner to perform any service in behalf of the United States, to the extent of the government interest therein."

## TITLE VI

## Transportation of Government Officials

Sec. 601. Any officer or employe of the United States traveling on official business overseas to foreign countries, or to any of the possessions of the United States, shall travel and transport his personal effects on ships registered under the laws of the United States when such ships are available, unless the necessity of his mission requires the use of a ship under a foreign flag: Provided, That the comptroller general of the United States shall not credit any allowance for travel or shipping expenses incurred on a foreign ship in the absence of satisfactory proof of the necessity therefor.

## TITLE VII

## Miscellaneous

**Authorization of Appropriations**

Sec. 701. The appropriations necessary to carry out the provisions and accomplish the purposes of this act are hereby authorized.

**Requisition of Vessels**

Sec. 702. (a) The following vessels may be taken and purchased or used by the United States for national defense or during any national emergency declared by proclamation of the President:

(1) Any vessel in respect of which, under a contract hereafter entered into, a loan is made from the construction fund created by section 11 of the merchant marine act, 1920, as amended—at any time until the principal and interest of the loan has been paid; and

(2) Any vessel in respect of which an ocean mail contract is made under Title IV of this act—at any time during the period for which the contract is made.

(*Continued on Page* 58)



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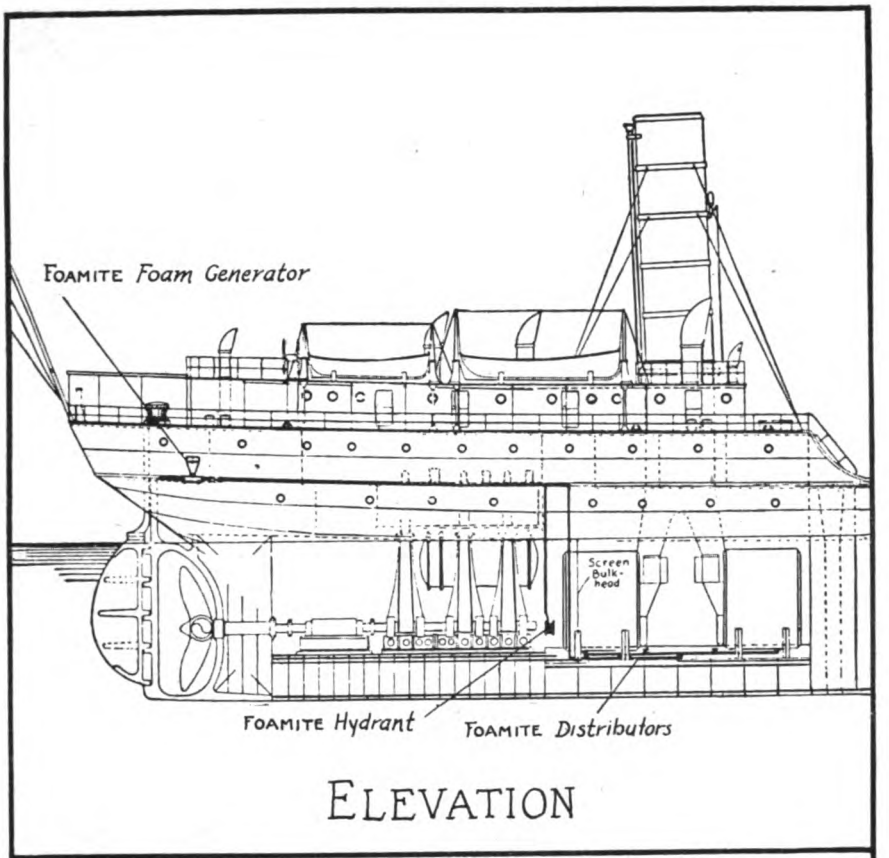


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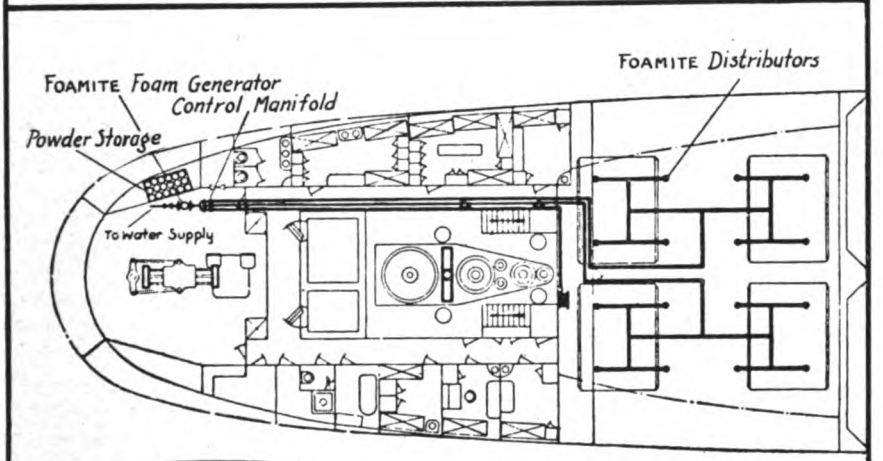


PLAN

*The* FOAMITE *Foam Generator produces a sustained large-sized stream of* Firefoam, *the supply of which is only limited by the availability of water and* FOAMITE *Generator Powder.*

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In the diagram at the left is shown a typical installation of a FOAMITE Generator System on a tanker.

Beneath the fire room floor are the distributor heads. From these a thick blanket of fire-smothering *Firefoam* can be spread over the entire tank top area—completely smothering any fire which may occur there.

In the engine room there is a hose outlet for protection against fires in that space.

Aft, in the steering engine house, is the FOAMITE Foam Generator, connected to the ship's water supply system—and the pails of FOAMITE Generator Powder.

Turn on the water, either fresh or salt, pour in the Powder, and *Firefoam* is automatically produced in quantity. The entire operation is quick, simple, and positive—with this remote control protecting the operator from the heat of the fire.

With this FOAMITE Generator System you have the advantages of minimum weight and space requirements, with low initial cost, and practically no maintenance.

Write for complete information, and ask for a demonstration of the FOAMITE Foam Generator. American-LaFrance and Foamite Corporation, Engineers and Manufacturers, Dept. J4, Elmira, N. Y.

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## *Text (Continued) of*

## Jones-White Merchant Marine Bill

(*Continued from Page 56*)

(b) In such event the owner shall be paid the fair actual value of the vessel at the time of taking, or paid the fair compensation for her use based upon such fair actual value; but in neither case shall such fair actual value be enhanced by the causes necessitating the taking. In the case of a vessel taken and used, but not purchased, the vessel shall be restored to the owner in a condition at least as good as when taken, less reasonable wear and tear, or the owner shall be paid an amount for reconditioning sufficient to place the vessel in such condition. The owner shall not be paid for any consequential damages arising from such taking and purchase or use.

(c) The President shall ascertain the fair compensation for such taking and purchase or use and shall certify to congress the amount so found by him to be due, for appropriation and payment to the person entitled thereto. If the amount found by the President to be due is unsatisfactory to the person entitled thereto, such person shall be entitled to sue the United States for the amount of such fair compensation and such suit shall be brought in the manner provided by paragraph 20 of section 24 or by section 145 of the judicial code, as amended [U. S. C., title 28, §§ 41, 250].

**Definitions**

Sec. 703. (a) When used in this act, and for the purposes of this act only, the words "foreign trade" mean trade between the United States, its Territories or possessions, or the District of Columbia and a foreign country: Provided, however, That the loading or the unloading of cargo, mail, or passengers at any port in any territory or possession of the United States shall be construed to be foreign trade if the stop at such territory or possession is an intermediate stop on what would otherwise be a voyage in foreign trade.

(b) When used in this act the term "citizen of the United States" includes a corporation, partnership, or association only if it is a citizen of the United States within the meaning of section 2 of the shipping act, 1916, as amended [U. S. C., title 46, § 802].

**Reaffirmation of Policy**

Sec. 704. The policy and the primary purpose declared in section 7 of the merchant marine act, 1920 [U. S. C., title 46, § 866], are hereby reaffirmed.

**Ship Operations**

Sec. 705. In the allocations of the operations of the ships, the Shipping Board shall distribute them as far as possible and without detriment to the service among the various parts of the country.

**Short Title**

Sec. 706. This act may be cited as the "merchant marine act, 1928."

## Diesel Electric Drive for New Lightship

Three electrically driven light ships, one for the West coast and two for the East coast of the United States have been ordered by the bureau of lighthouses of the department of commerce. These three ships, the first of their kind are to be built by the Albino Marine and Iron Works, Portland, Ore. The electrical equipment throughout will be furnished by the General Electric Co. The vessels are to be constructed of steel and will be 133 feet 3 inches in length over all, 30 feet in beam and will have a depth of 15 feet and a displacement of approximately 630 tons.

Each lightship will be equipped with diesel electric propulsion machinery. This is a departure from practice as heretofore lightships have always been propelled by steam machinery. Such vessels must remain on their stations for six months at the time without refueling and consequently economy of fuel consumption is of special importance.

The main machinery consists of four 75-kilowatt diesel generating sets. Each set will be driven by a Winton diesel engine direct connected to a General Electric generator. The propeller for each boat will be driven by a 350 horsepower, 300 revolutions per minute, double armature motor the power for which is to be supplied by the four generators connected in series. Because of the long stay on a station the propelling machinery is used only for relatively short periods during the life of the vessel. The auxiliary equipment, however, including lighting and miscellaneous devices on the ship is in constant use. For the auxiliary load it will be possible to furnish the necessary current by operating one of the four main propulsion diesel generating sets.

One of the unusual features in connection with these as with all lightships is that the anchors weigh 7000 pounds each and the anchor chain is of two-inch stud link cast steel. The windlass, of a size suitable for a merchant vessel of ten times the tonnage, will be driven by a 50-horsepower electric motor. Electric lamps with electric clockwork flashers will be used on the two lantern masts, electricity being readily available. The fog signal on each vessel will also be electrified and will use compressed air furnished by two 25-horsepower motor-driven compressors.

## Build River Towboat

An electric towboat, for use in transporting steel products along the Warrior river in Alabama, is now being built for the Tennessee Coal, Iron & Railroad Co., Birmingham, Ala. The new boat will be of the tunnel stern, twin-screw wheel type and will be propelled by diesel electric drive.

The boat is being built by the American Bridge Co. and will be outfitted by the Carnegie Steel Co., both of Pittsburgh. The electric equipment will be furnished by the General Electric Co. The Tennessee Coal, Iron & Railroad Co. has several steamboats of the stern paddle-wheel type in operation, but diesel electric drive was adopted for the new boat in order to obtain higher efficiency and better maneuvering qualities. The Warrior river is a tortuous one, having many sharp bends, and is relatively shallow with swift currents. The length of tow is limited to seven barges by certain bends in the river. These barges will be pushed ahead by the towboat.

The towboat will be completely electrically equipped, with the exception of the galley and the heating facilities, the latter being provided by a small donkey boiler. The power plant consists of two 550-horsepower diesel engines manufactured by the New London Ship & Engine Co. These are direct connected to two 335-kilowatt-250-volt 250-revolution per minute, direct-current generators. Each propeller will be driven by a double motor rated 400 horsepower, 140 revolutions per minute, 250 volts, shunt wound.

Power for auxiliaries and lighting, as well as for excitation for the main generators and propelling motors, will be furnished by two 40-kilowatt, 120-volt, compound-wound, direct-current, auxiliary generators. These will be driven by the main engines and will be mounted directly on the shaft extensions of the main generators. Variable voltage control will be used, arranged for operation either from the pilot house or the engine room.

It is expected that the boat will be put in service about midsummer.



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S. Atlantic ports to United Kingdom and Continental European ports

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*Tampa Interocean S. S. Co.*
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TEXAS UKAY LINE
*Texas Oceanic S. S. Co., Inc.*
Cotton Exchange Bldg.
Galveston, Texas
Texas ports to United Kingdom ports

**Passenger Services**—Included in these services are the speedy passenger vessels of the United States Lines sailing from New York to principal European ports, also the American Merchant Lines ships which sail weekly between New York and London offering passenger accommodations at reasonable rates.

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DIXIE UK LINE
*Dixie Steamship Co.*
Whitney Central Bank Bldg.,
New Orleans, La.
New Orleans to United Kingdom

*AMERICAN WEST AFRICAN LINE
*A. H. Bull & Co., Inc.*
50 West Street, New York City
North Atlantic and Gulf ports to west coast of Africa, including Azores, Canary, and Madeira Islands

AMERICAN MERCHANT LINES
*J. H. Winchester & Co., Inc.*
17 Battery Place, New York City
Passenger and freight services to United Kingdom ports

*AMERICAN INDIA LINE
*Roosevelt S. S. Co., Inc.*
11 Broadway, New York City
North Atlantic ports to Indian ports

*ATLANTIC AUSTRALIAN LINE
*Roosevelt S. S. Co, Inc.*
11 Broadway, New York City
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***Periodically the above two lines combine on an around-the-world service via the Suez Canal***

DIXIE MEDITERRANEAN LINE
*Dixie Steamship Co.*
Whitney Central Bank Bldg.
New Orleans, La.
New Orleans to Mediterranean ports

GULF BRAZIL RIVER PLATE LINE
*Mississippi Shipping Co., Inc.*
Hibernia Bank Bldg.
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THE exceptional freight services provided by the lines operated for the United States Shipping Board to all parts of the world have won the hearty approval and steady support of experienced and progressive American shippers.

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*Mississippi Shipping Co, Inc.*
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MOBILE OCEANIC LINE
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AMERICAN PIONEER LINE ATLANTIC DIVISION
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N. Atl. ports to Orient and Dutch E. I.

AMERICAN PIONEER LINE GULF DIVISION
*Tampa Interocean S. S. Co.*
Whitney Bldg., New Orleans, La.
Gulf ports to Orient and Dutch E. I.

TEXAS MEDITERRANEAN LINE
*Texas Oceanic S. S. Co., Inc.*
Cotton Exchange Bldg.
Galveston, Texas
Texas ports to Mediterranean ports

AMERICAN REPUBLICS LINE
*C. H. Sprague & Son, Inc.*
33 Broad St., Boston, Mass.
N. and S. Atlantic ports to Brazil and River Plate ports, east coast of South America

ORIOLE LINES
*Consolidated Navigation Co.*
Citizens National Bank Building
Baltimore, Md.
North Atlantic ports to west coast of United Kingdom and Irish ports

SOUTHERN STATES LINE
*Lykes Bros.-Ripley S. S. Co., Inc.*
925 Whitney Central Building
New Orleans, La.
New Orleans and Texas ports to German and Holland ports

TEXAS STAR LINE
*Lykes Bros.-Ripley S. S. Co., Inc.*
925 Whitney Central Building
New Orleans, La.
Texas ports to French and Belgian ports

UNITED STATES LINES
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Passenger, mail, and freight services to England, Ireland, France and Germany

*Accommodations available for a limited number of passengers on these lines.



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## Luffing Cranes Needed

(*Continued from Page* 45)

gear in order to balance the rope with a view to obtaining horizontal motion of the load. Depending on the load capacity of the crane, the rope may have to run over as many as 12, and even more, sheaves during the luffing operation. In the case of a level luffing crane, however, the same short length of the swinging rope end is maintained all the while, and the load rope does not move over sheaves at all during the luffing operation. In the first place this means a very considerable reduction in the wear and tear on the ropes, but it also leads to an important saving of power. Fig. 18 shows a diagrammatic sketch of a heavy-load crane having a capacity of 40 tons on a luffing jib reducing its radius from 82 feet to 33 feet. The luffing gear of this crane consists of toothed-wheel segments and pinions.

The plant illustrated in Fig. 9 shows a modification, the position of the links in respect of one another being different. The jib-head sheave of this crane had to be placed fairly high above the level of the ground in order to reach the top loading platform of the warehouse. On the other hand the overall height of the crane, with its jib hauled close, had to remain within certain limits to prevent collisions with the loading bridge traveling along on the roof of the warehouse. To satisfy both these conditions, the link system was designed to make the front link move almost horizontally during the luffing operation, contrary to the procedure adopted in the preceding types of construction.

Designers of floating cranes always aim at bringing the center of gravity down to the lowest possible level. In a floating crane for the port of Stockholm this object was achieved by making the middle link instead of the rear one stiff enough to prevent its bending, and using this link for transmitting the luffing motion to the jib, Figs. 4 and 10. The weight of the jib is balanced in much the same way as in Fig. 6 by means of a swinging lever supported in bearings in the frame of the crane, and carrying a counter-weight on its rear end.

None of the types described employ ropes for supporting or luffing the jibs. In all of them the cabins for the operators or the jibs are located in such a way that the operator's view of the entire distance traveled by the load remains wholly unobstructed by structural parts of the crane.

The most suitable type for a given purpose can only be determined in each case according to the special working conditions applicable in every instance. The local conditions on the site, and the question of cost play a decisive part, each of these factors, however, being of a variable nature. One type may be more suitable in one case, while in another case a different type may be preferable for exactly the same purpose. But it will be evident from the foregoing that luffing cranes, with their ready and quick action and their adaptability to localities with no space to spare, constitute a type satisfying in a large measure the demand for the highest possible efficiency and economy in trans shipping goods, both at sea and inland ports. The equipment described has been developed by the Deutsche Machinenfabrik, Duisburg, Germany.

## Advertising Convention

The Hotel Chase is the place in St. Louis where the National Industrial Advertising association will hold its annual convention this year. The theme of the convention is: "Can industrial advertising lower the cost of industrial sales—and how!"

Those who are closely in touch with the plans for the conference say that it is an excellent opportunity for one to get a "lifetime's advertising education in three days." During the three appointed days will be gathered in St. Louis the merchandising, sales and advertising brains of the country, all bent on learning, giving and exchanging ideas on industrial sales and advertising plans and campaigns.

## Offer Student Tours

Frank C. Munson, president of the Munson Steamship line has announced jointly with the association of South American universities, 67 Wall street New York, the organization of special summer schools for students from the United States in two great South American universities together with the inauguration of tourists' class accommodations on fast passenger liners to South America at less than one half the existing first class tour rates. The Munson line steamers, AMERICAN LEGION, SOUTHERN CROSS, PAN AMERICAN and WESTERN WORLD are now being reconditioned for this purpose. The quarters are to be on the after decks and special deck space will be allotted for outdoor recreation. There will also be a separate dining salon.

Mr. Munson is referring to the new student tour plan said in part: "We have had a desire for passenger accommodations of this kind for some time. It is our belief that the interchange of visitors between the two continents will increase rapidly from year to year. It gives us pleasure to co-operate with the Universities of Buenos Aires and Rio de Janeiro in this plan."

## Elected President

Capt. Eugene E. O'Donnell was elected president of the Eastern Steamship Co. at a meeting of the board of directors at Boston, April 30. He succeeds Calvin Austin who was elected chairman of the board of directors. A. Murray Austin resigned as treasurer and Harold E. Melzar was elected to fill the vacancy.

The election of Captain O'Donnell as president of this old and very important coastwise line is a fine tribute to his long and varied experience and to his ability and character. He was born in Boston and comes from a long line of seafaring ancestors, he himself at one time having served as captain in the same company of which he is now president. Captain O'Donnell has for some years been vice president and general manager of C. H. Sprague & Son an old Boston shipping house. It is said that he will continue his connection with this company.

The new treasurer of the Eastern Steamship Co., Mr. Melzar has been connected with the Amoskeag Co. since 1915. Born in Boston he began his business career with the old Colony Trust Co. Calvin Austin, chairman of the board has been in the steamship business for 53 years, starting as a messenger boy with the Sanford Independent Steamship line in 1875, at the age of 20. He rose steadily through all grades finally being advanced from vice president to president in 1901.

## Haskelite Co. Moves

The Haskelite Mfg. Corp., makers of the structural plywoods, haskelite and plymetl, recently moved to larger quarters at 120 South LaSalle street, Chicago. Their new offices are now on the same floor as the Vitrolite company, and other Meyercord interests.

## Moves to New Quarters

Announcement has been received of the removal of the offices of the Hamburg-American line from the temporary location at 26-28 Broadway, New York, to permanent quarters in the new Harriman building, 39 Broadway, New York.



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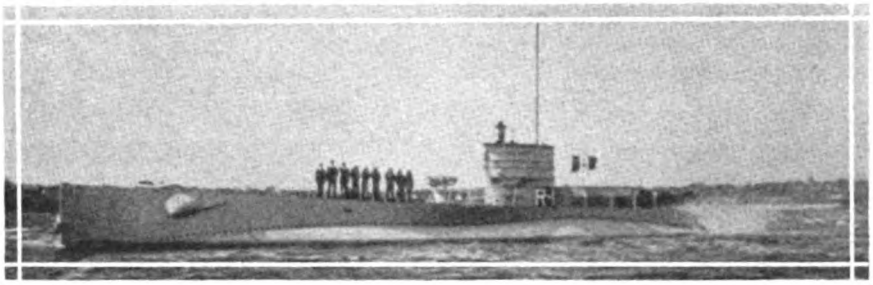

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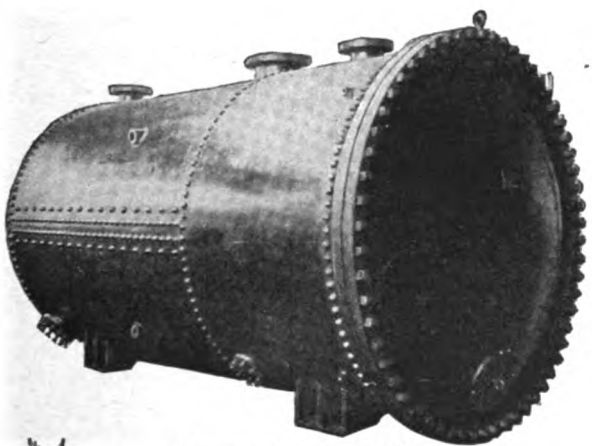

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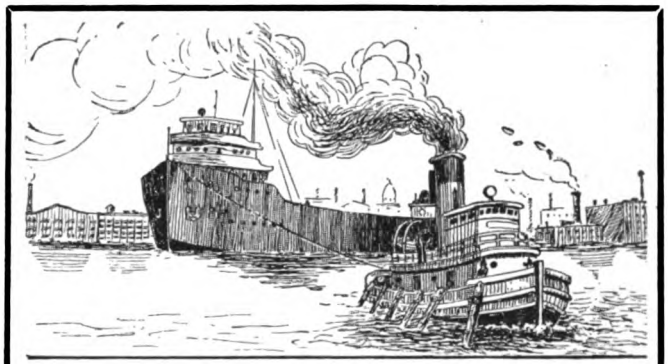

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## Atlantic Trade Grows

(*Continued from Page* 22)

to pay the highest first class fares but who desire to travel in comfort equivalent for all practical purposes to that afforded first class passengers. To meet this need, many of our steamers have been converted to cabin class ships and have received increasing support from passengers. To this type of vessel we have now added the ADRIATIC, of over 24,500 tons register.

"Another development of modern times is the creation and growth of tourist third cabin traffic, to the possibilities of which we have been fully alive. The day has passed when the idea of crossing the Atlantic was confined to two classes, the well to do, who traveled for business or pleasure, and the immigrant who sought a career in a new land. Large numbers of people of moderate means in the United States and Canada desire to come over to visit their old homes and associations or see England and Europe for the first time. Similarly, an ever increasing number of people of this country and the Continent wish to extend their knowledge and experience by seeing something of the wonders of the new world, or to see relatives and friends who have made homes there.

### Tourist Third Cabin Popular

"For this purpose we have provided in all our transatlantic vessels, tourist third cabin accommodations, which are superior to the ordinary third class, and the White Star line is carrying a larger share of this class of traffic than any other company. Passengers in this tourist category are insured comforts and good catering combined with exceptionally low rate passage money for return voyage.

"By this means, a holiday in the United States or Canada, and vice versa is brought well within the bounds of practicability for a great many people to whom formerly the idea of crossing the Atlantic seemed too remote to be seriously contemplated.

"Shipping companies engaged in transatlantic trade used to carry large numbers of emigrants from Great Britain and Ireland and other countries in Europe, but the United States immigration restrictions have reduced this traffic to comparatively small proportions. The flow of emigrant traffic across the Atlantic has been thus much curtailed and a valuable source of revenue for vessels adapted to carry large numbers of emigrants has been greatly diminished. We hope that in time restrictions may be considerably modified, at least in favor of settlers of British stock.

"You will recall the agreement under which the International Mercantile Marine Co. continued to act in the United States as agents for the White Star line, was due to expire in June, 1929. The existing representation of our interests in America has been working smoothly and satisfactorily and this agency agreement has now been extended until the early part of 1930.

### From Havre to Canadian Ports

"I have mentioned that we have now inaugurated service from Havre to Canadian ports. In this connection, interesting developments are taking place at the port of Havre where extensive oil storage installation has been established, and a big new ocean quay with up-to-date terminal facilities has been constructed. We are watching these important developments closely and if found that Continental passengers by our mail steamers could more advantageously land or embark at Havre, thereby reducing the length of the rail journey to and from Paris and other Continental centers, the possibility of arranging that these vessels call at that port will be carefully considered.

"North Atlantic passenger trade is largely a seasonal one and for less busy periods we have arranged attractive cruises. These cruises, carried out by some of our best known ships, are becoming increasingly popular as providing a means of healthful and interesting holidays at a moderate expense.

"The fleet of the White Star line, which has been maintained in first class condition, now consists of 26 vessels of 461,375 gross register tons. The companies closely associated with us viz. George Thompson and Co., and Shaw, Savill and Albion Co., together compose a fleet of 21 vessels of 198,381 gross register tons. The fleet of the Australian Commonwealth line consists of 7 vessels of 88,587 gross register tons. The combined fleets aggregate 54 vessels, of 748,280 tons gross register. During the year we made a valuable addition to the fleet by placing in commission the LAURENTIC, delivered by the builders, Harland and Wolff, Nov. 1, 1927. The splendid vessels, the ALBERTIC and CALGARIC, have been taken over from the Royal Mail Steam Packet Co., and have increased their popularity in the North Atlantic trade.

"As already mentioned, we are constructing a large passenger vessel of over 26,000 tons, to be driven by motor engines, for the Liverpool-New York service.

"A great organization of this kind which has so many points of contact with the general public, is more than ordinarily dependent on its personnel for the success of its operations. The White Star line has long enjoyed the reputation of having, both afloat and ashore a staff who have upheld its traditions and given their best to insure satisfactory service for the supporters of the line.

"I wish personally and on behalf of the board to express the appreciation of the good works of the management, officials and staff at home, abroad and at sea. I feel confident we may look to them each in their own sphere, to continue to their utmost to further the interests of the company. Ever since the White Star line entered the North Atlantic passenger trade, over half a century ago, it has striven to afford the best possible facilities for the conveyance of passengers between the United States and Europe with maximum speed and comfort.

### Vessels of Highest Class

"Luxurious express mail steamers and other regular services of vessels of the highest class provide for requirements of all grades of passengers. Although the volume of passenger traffic to and from the United States has attained considerable dimensions, there are still many millions of people who have never crossed the Atlantic and who perhaps do not sufficiently realize the attractions and advantages of business or holiday visits either to the United States or Europe. The White Star line has always been especially popular with the American traveling public and we are keenly interested in all that affects the progress of that great nation. The wonderful development of the United States and the success of its big business undertakings have won the admiration of the world. The high standard of living and the comfortable circumstances the people of the United States enjoy, coupled with the efficiency of American productive and commercial organization, are not the only evidence of the success of that great country's industrial policy, but holds a promise of a still more wonderful future.

"The White Star line is well equipped to provide for whatever increase the future may bring in passenger traffic to and from North America and as one of the main connecting links between the old and new world we look forward to the future with confidence."



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